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ORIGINAL ARTICLES.

THE WORK AND PAY OF HEALTH OFFICERS.

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Mr. President and Members of the State Medical Society:—I wish, first of all, to thank the Section of Practice of Medicine for this opportunity to place before you what I have to offer. I have assumed that I would be expected to deal with some subject likely to be of interest to the general practitioners, and which my own occupation might enable me to have more than ordinary opportunities for studying. Inasmuch as the State law now requires that, wherever it is practicable, every health officer shall be a physician, and there are now fifteen hundred health officers chosen in Michigan every year, there is a possibility of my subject being of interest to a considerable proportion of the general practitioners in the State, because many of them may, at some time, be health officers, and because, if my views were to be carried out, nearly fifteen hundred practitioners would devote the greater part of their energies to official duties, and not to the practice of medicine.

Although the title of this address is "The Work and Pay of Health Officers," I desire, at this time, to deal especially with the subject of pay. My belief is that the compensation of the health officers, generally throughout the State, with only a few exceptions, is ridiculously small and inadequate; and that the best interests of all concerned are injured thereby, and will be best conserved by such a general change as shall recognize the fact, as old as the scriptures, that "the laborer is worthy of his hire" or reward.[1] I suppose it is not necessary for me to laboriously prove that this proposed change would be a good thing for the medical profession in this State; if it is ever questioned I will try to prove it, on some other occasion; but it may not, at first glance, be so apparent that it would be a good thing for the sanitary interests of the whole people of the State. Therefore the reasons for a belief that such is the fact may well be stated.

At first thought, it might seem that gratuitous services by physicians acting as health officers would always be for the best interests of the people generally; and, in the beginning of any movement for sanitary reform, it undoubtedly is for the best interests of the people. The people of Michigan owe a great debt of gratitude to the philanthropic physicians throughout this State who have generously performed services for the public which the people generally were not sufficiently informed to ask for, to pay for, or to appreciate, but which have tended to place Michigan in the front rank of progress in sanitary reform. The officers and members of this State Medical Society, especially, have contributed very greatly to place Michigan in the lead in sanitary progress.

But, in the evolution of organized society, there come times when methods, which have served exceedingly useful purposes, need to undergo slight modification in order better to fit them for the changed conditions. In my opinion, the time has arrived when it will best serve the people of Michigan to gradually educate them into a knowledge of the real value of public-health work, and into an appreciation of the fact that it is best for corporations and governments, townships, cities and villages, as it has long been known to be best for individuals, not to try to get something for nothing. In the long run, an effort to get something for nothing is unsuccessful. Such efforts generally lead the individual to the penitentiary, and the government to a penitential mood.

The people have gradually so increased in appreciation of the importance of public-health work that their representatives, the law-makers, have provided so much work to be done by health officers, and have affixed to the non-performance of the duties such penalties that no ordinary practitioner can without adequate compensation afford to take the chances of being held accountable under the law for the neglect of official duty. But the main reason why it does not now seem to be best that the duties of the health officer should generally be performed gratuitously, is that no ordinary practitioner can afford to, and it is getting so that generally no competent physician will, for any small sum, neglect his practice and do all that the law and public sentiment now expect to be done by the health officer.

The amount of service that is now required of the health officer is frequently not appreciated by the physician until he has accepted the office, when he finds that, owing to comparatively recent laws, more is required of him than he anticipated.

What is needed is some method whereby not only physicians, but the people generally, who have to pay the health officer, shall become informed of the nature, extent, and importance of the work of the health officer. It seems to me that, as might have been expected from the occupation, those who have managed the school interests in Michigan have shown most wisdom in their methods of impressing the people with the importance of their work, and also in obtaining from the people the necessary money to carry on the school work. We need to adopt their methods. Whoever will examine his receipt for taxes will find that the main items are for school purposes. Yet the people vote to assess themselves for those purposes, after the subject has been carefully put before them. And those who have the interests of the schools in charge have opportunity, and they

[1] 1 Timothy, v, 18, and Luke x, 7.

carefully prepare and put before the people every year, at the school meeting in September, the amounts of money which it is estimated should be used for school purposes, and facts and reasons why those amounts are needed. There should be a law similar to the school law, relative to public-health affairs. Surely the interests of the health and life of the whole people, including the children, are of more consequence than the school education of the children alone!

All that is required to make this apparent, is such an opportunity as the school laws provide for placing the facts before the people at the time the vote is taken to adopt the estimates of those who have this branch of the public service in charge.

How to get Money for Public Health Work.—Have a public meeting of citizens of the city, village or township, at which meeting the amount of money to be assessed and collected for public-health purposes shall be voted upon. Have the local board of health present to that meeting estimates of the amounts proper to be collected. The health officer should be prepared, and should present to this public meeting the facts, and reasons why expenditures for public-health work are in the public interests. It ought not to be difficult to convince the people generally that the lives and health of the people themselves are of more consequence than any other subject for which they collect taxes.

Let us suppose that opportunity is given the health officer to put before the people of a township, village or city the facts and reasons for public-health work; what can be presented?

This can be presented:

1. The health officer can assure the people that, if they are situated in the average locality in Michigan, the death-rate will average about 17 per thousand inhabitants per year; that, of those deaths, about 11.8 per cent. will be from consumption, 6.5 from diphtheria, 2.7 from scarlet fever, and 3.2 from typhoid fever. He can assure the people that these are all communicable diseases, that they are all preventable through measures which are now well known to sanitarians; and, what is more to the point, he can assure them that reliable statistics, collected by the Michigan State Board of Health, from the experience of local officers in Michigan, have proved that (even after the disease has been introduced) about 75 or 80 per cent. of the cases and deaths from diphtheria and from scarlet fever are prevented by measures which a good health officer, acting in accordance with our present laws, and supported by the people of his locality, can inaugurate and maintain. Knowing approximately the population of the township, village or city, the health officer can readily compute the saving of life which such a saving, as has been proved to occur under such measures, would be for that number of inhabitants. Let us suppose a small city, of four thousand inhabitants—then the deaths from all causes, at the rate of 17 per thousand per year, would be 68; the deaths from consumption (11.8 per cent.) would be 8; the deaths from diphtheria (6.5 per cent.) would be about 4½ (4.4); the deaths from scarlet fever (2.7 per cent.) would be nearly two (1.8); the deaths from typhoid fever (3.2 per cent.) would be a little over two. If 75 per cent. of these deaths were to be prevented, there would be a saving of the lives of about three persons from death by diphtheria, about one from scarlet fever, and one from typhoid fever. These five persons constitute a part of the productive energy of the city upon which its prosperity depends. They are worth to the city, for what has been expended to raise them, and for what they will earn in excess of costs of maintenance, at least as much each as a good slave would sell for before the war, which was about the same as the statisticians compute as the value of an ordinary laborer—say for the adult person one thousand dollars, and for each of the children one half of that amount. The four who are saved from diphtheria and scarlet fever would be likely to be children, while the one saved from typhoid fever would be likely to be in the prime of life. The actual money value of the five persons, therefore, would be three thousand dollars. If a city of four thousand inhabitants should vote to use three thousand dollars per year in public-health work, I have no doubt whatever but the five lives, above mentioned, could be saved, from those three diseases alone; and probably lives could be saved from other diseases. Then how much better to save those lives, and avoid the grief and sorrow which would result from their loss. Again, the money used would be only the amount which, without effort for restriction, would be lost to the city—the actual outlay would not be at all increased. It seems to me that any meeting of citizens, of ordinary intelligence, could be made to see that the lack of public health work is a wasteful extravagance, and that it is better to use a certain sum of money to pay a health officer than to permit the death of loved ones that have actualiy cost as much as that sum, and who, if they die, are a dead loss, in more than one sense.

The facts are applicable to every locality in Michigan, making allowance for a greater or less number of inhabitants.

This may seem to be an unusual topic for the annual address which we denominate an "Oration"; but I believe it is one in which the medical profession have great interest, and certainly should have great influence in its decision. I have given you some of the reasons why I favor legal provision for the presentation locally, to all voters throughout the State, of the benefits to be expected from sanitary work, after the manner of the meetings to determine the amounts of money to be raised for school purposes.

I know it is not customary to discuss "Orations"; but this is a practical subject, of considerable general interest to the entire profession; if agreeable to the society, I shall be glad to have the subject discussed.

INFECTED FOOD.

Read before the Michigan State Medical Society, May 5.

BY VICTOR C. VAUGHAN, M.D.,
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Mr. President and Gentlemen:—Numerous examples of poisoning from cheese, canned salmon, sausage and other articles of food, have been reported within recent years. It has also been demonstrated that, in more than one instance, the milkman has distributed the germs of typhoid fever along with the lacteal fluid. There has been a great deal said about the spread of tuberculosis through infected meats. All of these are subjects of the greatest interest to the practicing physician. He does not know at what moment he may be called upon to treat a case of poisoning from canned meats. When he is confronted with an epi-

demic of typhoid fever, he must inquire into its origin, and at all times he needs to know, or wishes to know, all that can be known concerning the spread of tuberculosis. For these reasons, I have been led to collect the best information I can find upon these points, and to present the same in a condensed form in this paper.

The infection of meat and milk may be discussed under the following heads:

1. Meat and milk, even when derived from perfectly healthy animals, often becomes infected with poison-producing germs.

2. The infection may be due to the inoculation of these foods outside of the body of the animal from which they are derived, with specific pathogenic microörganisms.

3. The infection may be due to a diseased condition of the animal from which the foods are obtained.

I wish to give especial emphasis to the question of the infection of meat and milk, and their products, with poisonous saprophytic germs. I desire to emphasize the fact that these foods, even when derived from perfectly healthy animals, and when kept free from infection with specific pathogenic bacteria, may and often do develop most potent poisonous properties. It is not necessary that food be infected with some specific microörganism before it can be rendered unfit for use. A sample of good milk may be divided into two portions, and one of these, under certain conditions, will become highly poisonous in a short time, while the other, under different conditions, may remain good and wholesome. Of two cans of salmon prepared from the same fish, and at the same time, one may become highly poisonous, while the other may remain good.

I will illustrate this by referring to cases of poisoning by frozen custard which I had an opportunity of investigating a few years ago. The milk supply to a certain small village had never been questioned. It was in constant use by some fifty or more people, and no cases of illness had arisen which could, in any way, be attributed to the milk. In preparation for a festival, some gallons of this milk were obtained, and made into custard. The custard was divided into two portions, one of which was flavored with vanilla and the other with lemon. The lemon custard was eaten without harmful effect, while a teaspoonful of that flavored with vanilla caused nausea, vomiting and purging. Of course it was quite natural to conclude that the vanilla was the poisonous agent, because at first it seemed that the only difference between the samples was that due to the use of the flavorings. Fortunately, however, not more than half of the vanilla in the bottle had been used, and the non-poisonous character of this flavoring was demonstrated by Dr. Novy and myself, each of whom took of the remainder without being harmed. The real difference between the portions of custard is explained by the following: The lemon custard was frozen immediately and was sent to the festival, while the vanilla custard stood for two hours before being frozen in a very filthy room, the air of which was said to have been like that of a privy vault. The room had some weeks before been used for a butcher shop, and had never been cleaned, and the bits of decomposing meat rendered the air foul, and supplied the germs with which the custard was infected.

Another illustration of this kind of infection was observed by me in the Milan cases of milk poisoning. The milk remained good and wholesome until it became inoculated with the germs in the infected pantry.

In these illustrative cases, the facts that the germs did not originate in any specific disease, and that they grew in the food before it was taken into the body of the consumer, demonstrate the correctness of the following proposition:

Some of the bacteria with which meat and milk become infected belong to the saprophytic microörganisms.

But it may be asked, How is it possible for a truly saprophytic germ to induce disease and death? This may occur in either of two ways: 1. The poison formed in the food before it is taken may be the sole and sufficient cause of the symptoms and death. 2. The germ may continue to grow after it is taken into the body with the food.

Let me point out here the fact that the distinction between intoxication and infection is not so easy and certain as we have supposed. It is customary to pronounce those cases in which the symptoms occur immediately, or within three or four hours after eating the food, as due to intoxication; while those in which the first symptoms appear later are said to be due to infection. In the former, the poison is supposed to be formed in the food before it is eaten; while in the latter, it is supposed to result from the growth and multiplication of the germs within the body. That there is a large opportunity for error in this distinction, must now be conceded by all who are acquainted with the more recent researches on the bacterial poisons. We now know that some of these poisons require a period of incubation, when employed in small doses, which often extends over many days. This was found to be true by Brieger and Fraenkel, in their studies of the chemical poisons of diphtheria, and I have observed the same in my experiments with the products of certain saprophytic bacteria found in the stools of children suffering from summer diarrhœa, and in others obtained from germs found in drinking-water. The fact that the first symptoms do not appear until many hours, and even a few days, after the food has been taken, does not seem to be absolute proof that the bacteria continue to live and multiply within the body. In some instances the germ undoubtedly does grow and multiply after its introduction into the body, and it may be found in the intestines or other organs after death. However, a germ may grow in the intestines and still be a saprophyte. The food in the duodenum has no more vitality than that in the nursing bottle. Moreover, the secretions which are poured into the intestine are not supposed to be possessed of vitality. A germ which will grow in milk in a culture flask, kept at the temperature of the body, and produce a poison, may grow in milk in the intestine of the child and produce the same poison, provided it is not destroyed or modified by some secretion of the body.

Some of the saprophytic bacteria with which food becomes infected are under certain conditions capable of living, for a time at least, in a parasitic manner. Thus, Dr. Novy found the same germ in a cheese and in the spleen and liver of animals which had been killed by feeding on the cheese. However, the parasitic nature of this germ, or, in other words, its capability of overcoming the resistance of the living tissue, seems to have been feeble, and instead of increasing in virulence as it passed through successive

animals, it became markedly less toxicogenic, and finally was without effect upon animals. I infer from this, and from similar phenomena which I have myself observed in experimenting with saprophytic germs from poisonous foods, that the toxicogenic properties of these organisms are best manifested when they are grown on dead matter.

The poisonous effects of the bacteria are also largely influenced by the conditions under which they develop. The most important of these conditions are the nature of the infected food, the temperature at which they grow, the amount of oxygen supply, and the time which elapses between the infection and the consumption of the food. I have been convinced that the poisonous properties of certain canned meats are, in some instances, wholly due to the fact that the germs which they contain grow practically without any air supply. The following brief report of a case of poisoning with canned salmon, supports the belief. Early last June, Mr. K., a vigorous man of 34, ate freely of canned salmon. Others with him at the table remarked that the taste of the salmon was peculiar, and refrained from eating it. Twelve hours later Mr. K. began to suffer from nausea, vomiting, and griping pain in the abdomen. Eighteen hours after eating the salmon I saw him. He was vomiting small quantities of mucus colored with bile at frequent intervals. The bowels had not moved, and the griping pain continued. He was covered with a scarlatinous rash from head to foot. His pulse was 140, temperature 102°, and respiration shallow and irregular. The stomach and large intestines were thoroughly washed out, the former by inducing free vomiting by the administration of copious draughts of warm water with mustard, and the latter by injections of large volumes of water. After this 10 grs. of calomel, followed in two hours by a bottle of solution of citrate of magnesia, were administered, for the purpose of cleaning the small intestine. After these medicines had operated freely, the patient began to improve. The next day the rash had disappeared, but the temperature remained above the normal for five or six days, and it was not until a week later that the patient was able to leave the house.

I obtained the remainder of the salmon and submitted it to various tests. In the first place, the absence of inorganic poisons was demonstrated. In the second place, the subcutaneous injection of 20 drops of the fluid expressed from the salmon caused evident disturbance in a white rat, but did not kill the animal. The only germ which could be found, either by direct microscopic examination or by the preparation of plate cultures, was a micrococcus, and this was present in the salmon in great numbers. This germ grew fairly well in beef-tea, but the injection of 5 cc. of the beef-tea culture into the abdominal cavity of white rats, rabbits and kittens, failed to induce death. However, this micrococcus, when grown for twenty days in a sterilized egg, after Hueppe's method of anærobic culture, produced a most potent poison. The white of the egg became thin, watery and markedly alkaline. Ten drops of this, given subcutaneously, sufficed to kill white rats.

Evidently, in the preparation of the salmon, this can was not sterilized. It was sealed, and for months, possibly longer, this germ had grown anærobically, and had elaborated a chemical poison.

On the other hand, I have known of several instances in which canned meats were not poisonous when first opened, but soon became so on standing exposed to the air. In these cases, the meat must become infected after the opening of the can.

Another important factor in influencing the effects of these infected foods, is to be found in the condition of the person eating the food. Especially is this true of the condition of the stomach. A good, healthy gastric juice will suffice to destroy many of the harmful things which man puts into his stomach. The following case, which was under the care of Dr. C. G. Darling, to whom I am indebted for these notes, illustrates this point:

"On April 12, 1892, two young men ate a sppper consisting largely of canned salmon. Mr. A. is strong, robust, and drinks occasionally. Mr. B., age 28, has suffered from indigestion for months, and has found it necessary to select his food with care, but on the night in question he proposed the supper of salmon, of which he was very fond. Mr. B. took the salmon from the top of the can. A short time before the supper A. took two glasses of beer, but B. did not take any. The next morning B. had a chill, which was followed by severe headache and pain in the abdomen. However he went to the store in which he clerked, and remained there until 9:30 A.M., when his employer, observing his illness, sent him home. During the day he attempted several times to vomit, but was unable to do so. I was called to see him at 7 P.M., April 13, and found his condition very serious. His mind was clear. He had severe and constant pain in the head; pulse 120 and feeble; respiration 20. There was a slight eruption on hands and face, consisting of slightly elevated red spots, about the size of a split pea. The spots were more abundant on the right than on the left side of the face, probably because the right side was on the pillow most of the time. The eyelids were red and swollen, giving off a profuse muco-purulent secretion. There had been no movement of the bowels for thirty-six hours. I prescribed for him, but afterwards ascertained that the medicine was not procured until the following morning. I visited him at 8 A.M., April 14, and found the temperature 102.5°, the eyelids more swollen, and the eruption increased. During the day and the following night, there were eight movements of the bowels in response to medicine. The patient gradually became unconscious. The respiration was increased on account of the high temperature, but at no time was there any involvement of the lungs. The kidneys remained inactive. There was no profuse sweating. The extreme pain in the head persisted. During the night he was aroused with difficulty, but took medicine and nourishment when they were placed to his lips. On the morning of April 15, the fingers were purple to the second joint, but were very warm. The temperature had risen to 105° in the axilla, and was not lowered by repeated bathing, but continued to rise and was 107° just before death, which occurred at 8 P.M. Post-mortem examination was not made."

I will here make some general remarks concerning the nature of the chemical poisons found in meat and milk, and their products, as a result of infection with these saprophytic bacteria. These poisons may be grouped in the same manner as those which are produced by the more strictly pathogenic germs. First, there are those which combine with acids forming salts, and which are designated as ptomaines. The ptomaines which are found in foods

as a result of the activity of the saprophytic germs' may truly be called putrefactive alkaloids. Then there are poisonous bacterial proteids. Poisoning with foods is often designated ptomaine poisoning, but my observation has led me to believe that of these two classes, the proteids are more frequently present in infected foods. It has been asked whether or not it is possible to induce poisonous effects by the administration of these proteids by the alimentary canal. Is it not true that they are non-diffusible, and that they would be inert if given by the mouth? There is not enough experimental evidence in our possession at present, to enable us to answer these questions with certainty, but we have good reasons for assuming that some of them are absorbed from the intestines. In the first place, we must remember that diffusion through a dead animal membrane and absorption by the living intestinal walls are not identical. Unchanged egg albumin will not diffuse through a dialyzer, but that it may be absorbed by the intestines has been demonstrated. Mitchell found that some of the proteid poisons of the venom of serpents are absorbed by the unbroken mucous membranes.

In the second place, the bacteria in the food may penetrate the intestinal walls and elaborate their chemical poisons in the spleen, liver and other organs, as the bacilli of typhoid fever and other pathogenic germs do; or, in other words, there may be true infection.

Since it has been found that some of the bacterial poisons are destroyed by a temperature approaching that of boiling water, it has been assumed by some that this is universally true, and that cooked meat or boiled milk cannot be poisonous, or if so, they cannot owe their poisonous properties to these bacterial bodies. This is an assumption which we are not at present justified in making. Certainly some of the bacterial proteids can be kept for ten or fifteen minutes at 100° C., and for a much longer time at 80° C., without being destroyed. I have isolated one of these proteids, which may be dried at 100° C. to a constant weight without any appreciable decrease of toxicity, and in solution it may be kept for half an hour at 80° C. with no effect. However, prolonged heat renders it inert. I believe that cooking meat or milk lessens the danger of poisoning by them, but it does not do away with that danger altogether.

I have met with poisonous foods in which I have been unable to find either poisonous bases or proteid bodies. Two years ago I was called upon to investigate some mincemeat which, it was claimed, had seriously affected a number of persons. Some of the meat was fed to cats and dogs, and invariably produced in them vomiting and purging. This was equally true whether the meat was given raw or cooked. Notwithstanding this positive evidence of the poisonous character of the food, I was unable to determine the nature of its active constituent. It was tested in the most thorough manner for inorganic poisons, for alkaloidal poisons and for proteid poisons, but with wholly negative results. Furthermore, plate cultures were made, and the isolated germs were fed to and injected into animals without effect. It is possible that the poisonous constituent was destroyed by the manipulations resorted to in the attempt to isolate it. This supposition is probably warranted by the experience of Tizzoni and Cattani, who found that the poisonous proteid of cultures of their tetanus germ is rendered inert by the action of strong alcohol.

Among the foods which frequently produce untoward symptoms are milk and its products. I took the ground some years ago, that the severer forms of the acute summer diarrhœas of children are due to milk poisoning, and I think that the majority of the members of our profession are now convinced of the truth of this belief. When children must be fed upon the milk of the cow, every precaution should be taken to prevent the infection of this milk with poison-producing bacteria, and when there is any doubt, the milk should be sterilized. I also claimed, at a time when the majority of bacteriologists believed that a specific germ for these diseases would be found, that the poisons were generated in the milk by saprophytic bacteria, and that any one of a number of germs might be, in a given case, the source of the trouble. This point is also now admitted to be true.

I have shown that cheese may contain a poisonous base, tyrotoxicon, or poisonous proteids. If we expect to find every sample of poisonous cheese containing the same active constituent, we will be disappointed. Indeed, it is, with our present knowledge of the manner in which these poisons are formed, highly unscientific for us to expect to find one poison responsible for the effects which follow the eating of all the different samples of poisonous cheese. We must remember that these poisons are due to a variety of species of germs, and that the chemical nature of the product will not only vary with the species producing it, but with the stage of putrefaction. Indeed, it is altogether possible that different parts of the same cheese may contain colonies of wholly distinct germs, and consequently different poisons. It certainly is a fact that one portion of a cheese may be poisonous and other portions not poisonous. I have seen samples of cheese, the outer portions of which could be eaten with impunity, while the inner portions are highly poisonous both to man and the lower animals. Ehrhart has reported a remarkable instance of this kind.

The method of making cheese is especially favorable for the collection of a large number and variety of saprophytic germs. The milk is brought to the factory by the farmers of the neighborhood. There is, in the majority of instances, no intelligent inspection of the cows. Some of the milk cans are properly scalded and aired, while there is always the probability that others are not. The milking may be done in filthy stalls, with dirty hands, from unclean udders and, possibly, into pails which have not received proper care. Then, I believe that there is no community in which the standard of honesty absolutely prohibits every milkman from diluting the lacteal fluid, and sterilized water is not usually used for this purpose. Moreover, the cheesemaker is not always duly appreciative of cleanliness about the factory and in the manipulations to which the milk is subjected. We need some bacteriologist who will do for the manufacturers of cheese what Pasteur has done for the brewers. The ripening of cheese is due to the growth of germs, and a good cheese could not be made without the help of these industrious little workers. The flavor and value of one cheese differs from another according to the kind of germ which takes part in the making of the cheese. The milk brought in from the various farms should be steril-

ized, and then inoculated with pure cultures of the desired germs and moulds. A plan like this will be adopted some time, and when it is carried out intelligently, poisonous cheese will not be made. Moreover, the flavor and digestibility of the cheese made will be greatly improved. At present, the bacterial flora of the cheese, which we eat, is dependent wholly upon accident. It is probably well that we are not, as we take our coffee and cheese, acquainted with all the varieties of microscopic vegetable life which we are masticating, and which have been gathered from the barnyards of the milkmen.

The treatment of poisoning from cheese is not very difficult. The poisons act so energetically upon the stomach and intestines that relief is generally secured by the vomiting and purging. The most dangerous cases are those in which these symptoms do not occur. In these instances, vomiting should be induced, and the bowels should be washed out thoroughly. At the same time any weakness of the heart should demand the hypodermatic use of digitaline or strychnine, or both.

The preceding remarks apply with greater force to poisoning with canned salmon, lobster, etc. In these cases, as a rule, there is no purging. The pain in the bowels is often very severe, but generally constipation is an accompaniment. With the appearance of the symptoms, the *materies morbi* is in the alimentary canal, and the aim of the physician should be to remove this before absorption can take place. The treatment must be prompt. The administration of antipyretics is, so far as I have observed, useless.

If the absorption of the poison is not prevented, and the patient passes into a condition of stupor, the chances of recovery, in case of poisoning with foods infected with toxicogenic saprophytic germs, are small.

In cases of milk poisoning in infants (or cholera infantum) the discontinuance of the milk is now generally insisted upon, and its practice has decreased the mortality markedly. Even sterilized milk should not be allowed at this time, because it so soon becomes infected in the intestine. The germs which cause the acute summer diarrhœas of infancy grow most rapidly and produce their most active poisons in milk, therefore it should be an invariable rule to prohibit absolutely the use of this food during treatment. This prohibition is the most important part of the treatment. Every case of cholera infantum is a case of food poisoning and should be treated as such.

The infection of meat and milk outside the body with specific pathogenic bacteria is so well known to occur that I will scarcely more than mention it. The frequency with which typhoid fever, diphtheria and other infectious diseases are disseminated by the use of infected milk is shown in the current record of medical literature. Milk has been diluted with water containing the germs of typhoid fever, and the prevalence of the disease may mark the daily rounds of the milk man. Dr. E. P. Christian, of Wyandotte, sent me in 1890, a sample of milk, and one of water from the well of the milk man. In both of these I found a germ which is toxicogenic to the lower animals, and which is more fatal than the Eberth germ. Dr. Christian had learned that the different families, in which he had patients sick with typhoid fever, obtained their milk from this man.

It is unnecessary for me to dwell on this point since all agree that the infection of these foods outside the body with specific pathogenic germs frequently occurs and is accountable for certain epidemics.

The question concerning the transmission of tuberculosis from cows to man through the eating of the flesh or the drinking of the milk of the former by the latter, is one of great practical interest. I shall not in this paper, however, enter into any detailed discussion of this part of my subject. I will content myself with a statement of the following propositions:

1. The flesh of a tuberculous cow, even when the disease is localized in the lungs, should not be eaten by man.

2. When the tuberculosis is general, there is danger of specific infection through the eating of the flesh or the drinking of the milk.

3. When there is tuberculosis of the udders the specific infection may be transmitted through the milk.

4. That infection with tuberculosis through the intestines may occur has been fully demonstrated by feeding healthy animals with tuberculous tissue, with infected milk and with pure cultures of the germs.

5. Infection by the way of the intestines is most common in childhood, at a time when cow's milk is used more abundantly than at any other period of life. This is shown by the larger number of instances of intestinal and mesenteric tuberculosis as a primary disease, among children than among adults. However, I do not believe that any large per cent. of the total cases of tuberculosis at all ages, is due to the eating of infected foods. In by far the greater number of these cases the pulmonary tuberculosis is the primary disease and the intestinal involvement is secondary, and there is no evidence that the tubercle bacilli pass through the walls of the intestine, through the lacteals and so on to the lungs without giving rise to any lesions before reaching the pulmonary tissue. That infection occurs occasionally through the lymphatics we have stated, but in such instances there are pathological evidences of the route taken by the infecting agent, and the pulmonary involvement is secondary. At present the weight of evidence favors the belief that all cases of tuberculosis in which the primary trouble is in the lung, are due to infection through inhalation; while those cases, in which the primary lesion occurs in any other portion of the body, are most probably due to infection by way of the intestines.

There are other diseases which may be transmitted from the lower animals to man by the eating of the flesh of the former by the latter, but they will not be discussed at this time.

HOW A GENERAL PRACTITIONER MAY TREAT ATROPHIC RHINITIS.

Read before the Kansas State Medical Society, at Fort Scott, May 4, 1891.

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Mr. President and Gentlemen of the Kansas State Medical Society: It is indeed difficult for one whose time is so fully occupied with the practice of a specialty, limited as is the one I represent, to prepare a paper which will afford scope for discussion in a society of general practitioners.

Atrophic rhinitis under its proper name, or under

that of its principal symptom, ozæna, is a subject too extensively and thoroughly treated of in text-books and in general literature to make any complete review of it either instructive or interesting.

It is, therefore, only my purpose here to record personal views upon some points concerning which there has been, and still is considerable controversy and difference of opinion.

Ozæna being now generally discarded as a distinctive name of any pathological process, is regarded as the principal symptom of several; yet the ozæna which attends the formation and retention of crusts in the nasal fossa affected by typical non-ulcerative atrophic rhinitis, is an odor perfectly distinct from that attending any other form of decomposition either in or outside the nose.

Syphilitic ozæna, or the ozæna of carious intranasal bone, and the ozæna from a foreign body in the nose, are both distinct in character from it. It has been stated that this odor is present where an atrophy exists. (Mackenzie, Gottstein.)

These instances are of very great rarity, and as the interior of the nose, especially where hypertrophy is present, cannot be thoroughly inspected in all its parts even with the best illumination, it is impossible to exclude the existence of atrophied glands and an altered epithelium. Such cases are, I believe, the beginning of the change from hypertrophy to atrophy, and one or two instances have come under my observation.

Rather more frequently we find atrophic rhinitis without either crusts or odor, especially in people beyond 45. It is impossible to say whether these cases have run their whole course without them, but although no such history is obtainable in some of the cases, it is probable that they were present in some degree at an earlier age. In other words, these are cases in which nature has cured the ozæna and left apparently unchanged the pathological process on which the symptoms depended.

The statement that the peculiar smell of ozæna may exist without the presence of retained secretions, should certainly be received with great reserve. Personally, I have never seen such a case, and I am inclined to believe those reported were cases in which crusts were from view in the accessory cavities of the nose. The intensity of the odor varies in different cases from almost nothing to a stench so offensive as to be unbearable. Nothwithstanding the fact that the disease sometimes occurs in persons of the very best general health and of irreproachable family history, it is more frequently seen in poor constitutions and with persons with a weak family record of health. The experience of other observers does confirm the assertion of Voltolini, that it occurs as frequently or more so, in the rich than the poor.

Heredity plays no *rôle* in the etiology of the disease. In one instance, however, I have seen it in three generations. In several instances I have seen it in sisters, once where both children were less than ten years of age. There is no proof, beyond such uncommon cases of coincidences, that the disease is contagious in the ordinary acceptance of the term. Voltolini says: "In my experience the disease is a woman's disease—I have observed it almost exclusively in the female sex, in some very rare instances also in boys and men, and in the latter there was still a question if there was not something else at the bottom of it."

Massei, on the other hand, says that "sex has not much influence on the development of ozæna," while Jurasz shows that in his experience it is only two or three times as frequent in women as in men. In my own experience it is certainly a rarity in the male, unless depending upon some local malformation of the septum. This is in striking contrast to hypertrophic rhinitis, which is much more frequent in men than in women.

Atrophic rhinitis being more frequent in the female, and most frequently developing at the age of puberty, while it is rarely seen after the menopause in women, it is fair to conjecture that there is some unexplained influence exercised upon the course of the disease, at least as far as the ozæna goes, by the genital apparatus. The ozæna is usually more offensive at the menstrual period than at other times. Exceptions to this are frequent, but not sufficiently so to invalidate the assertion.

Nevertheless it occurs at all ages; I have seen it in infancy and in old age. In the former, however, it must not be taken for the nasal lesions of hereditary syphilis; while atrophy may begin in adult life, ozæna rarely begins after thirty.

Some years ago Zaufal advanced the theory that ozæna was due to congenital smallness of the turbinated bones, causing an abnormal roominess of the nasal chambers, while Laubage and Tilot (quoted by Massei), on the other hand, claimed that it was caused by a congenital narrowing of the nasal fossæ. These statements have rather an historical than a practical interest, as they have received little support from the large numbers of contributors to the literature of the subject. Clinically, we often see atrophy in one nostril associated with abnormal roominess of the fossæ caused by extreme deviation of the septum to the other side. These cases can usually be promptly cured by correcting the deviation of the septum. Michel and others have stated that many cases of atrophic rhinitis are caused by a suppurative inflammation of the accessory sinuses. It is true that these conditions may co-exist in rare instances, and it often happens that suppuration of these cavities is mistaken by careless and inexperienced observers for the ozæna of atrophic rhinitis. There is little evidence that either of these affections has any causative relation to the other. It is generally agreed at present that syphilis, either congenital or acquired, has nothing to do with non-ulcerative atrophic rhinitis, while struma, with which Stoerk connected the disease, has no definite meaning in modern pathology. It is probable, however, that atrophic rhinitis may be congenital, as it is occasionally, though very rarely seen in an advanced stage in young infants. There is no connection between tuberculosis, either localized or general, and atrophic rhinitis, and it is my impression that phthisical patients do not furnish their quota of ozæna. The suggestion was lately advanced by Spencer Watson, that atrophic rhinitis is the analogue on a mucous surface of lupus erythematous on the skin. Another London authority (Woakes) explains its etiology by supposing it to be due to some pathological state of the vaso-motor nerves. These are certainly curious and interesting theories, but belong almost entirely to the realm of speculation, having no clinical or pathological proof. It is still a hotly debated question as to whether atrophic rhinitis is a disease by itself, commencing *de novo*, or whether it is the later stage of hypertrophy.

Bosworth claims that in the early stages, usually in childhood, these cases suffer from suppurative rhinitis. As time goes on, the elements of the mucous membrane become altered in structure, and atrophy, both of the investing and glandular epithelium occurs, crusts form, and their contractions, as they dry on the surface of the turbinated bodies, exert pressure which causes the extreme atrophy. This is certainly a very attractive and simple theory, and if the premises are once granted, it appeals strongly to reason. In my experience and in that of many others, chronic purulent rhinitis is a rare affection, both in adults and in children, unless dependent upon syphilis, a foreign body, suppuration of the accessory cavities or upon a marked general enfeeblement of body due to the presence of some chronic malady, such as tuberculosis in some of its many forms. The only clinical indication which would point to that origin of the disease which I recall is that occasionally in well developed cases of atrophic rhinitis, a history can be obtained that the nasal secretion at first was abundant and came away freely. I remember a few cases of chronic purulent rhinitis in the adult; whether they went on to atrophy I am unable to say. Nevertheless, it seems highly probable that atrophy should follow such cases, but their great rarity in children fails to account for the comparative frequency of ozæna in adolescence. The contrasting pressure of the dried crusts will hardly explain the atrophy because there must have been great and important alterations in the mucous membrane which produced this abnormal viscidity of the mucus, which prevented its flowing from the nose. That atrophy causes the crusts and the crusts cause the atrophy, is not entirely satisfactory to the inquiring mind. Contrary to Bosworth's remark, that the epithelial structures are apt to be involved in pathological changes in the mucous membranes in youth, it is universally admitted that these changes, benign as well as malignant epithelial growths, belong at least to mature adult life. The tendency to atrophic changes in all tissues of the body belongs to late adult life, not to adolescence. Hypertrophy is most frequent before middle life, but also, at least in the nasal mucous membrane, after adolescence. It certainly, therefore, seems to me that the facts do not fit with Dr. Bosworth's theory. It is the belief of perhaps the plurality of the observers, that atrophic rhinitis is the latter stage of the preëxisting hypertrophy; while this is not an entirely satisfactory view, it seems to me to coincide better with clinical observation and our knowledge of analogous pathological changes elsewhere, as in chronic inflammation of the internal organs. If it is true that atrophic rhinitis begins as such, the only analogy we have to it is the atrophy which follows nerve degeneration, a thought which may be of some comfort to many of us. Hypertrophic rhinitis, while not rare, is not a common affection in children. If we are to suppose that this, as well as other inflammations, simple, catarrhal or suppurative, end in atrophy, we must acknowledge some unknown biological factor which makes that change very much more common about the time of puberty in females. In a few cases, I have been able to notice this change from hypertrophy to atrophy. These two conditions may coëxist in the same nostril; atrophy of the inferior and hypertrophy of the middle turbinated bone called by Woakes "necrosing ethmoiditis" is not frequently observed in connection with atrophy of the inferior turbinated bone. A furrow traverses longitudinally the middle turbinated bone, dividing it into halves. Pus is seen to exude from this furrow and from the ethmoid cells. There is, however, no carious bone.

Occasionally advanced atrophy may be observed in one nostril and marked hypertrophy in the other. I have yet to see a case in which one nostril is occluded by crusts and the other is secreting abundant fluid, muco-purulent matter. It is impossible to deny that atrophy of the mucous membrane may begin *de novo* in rare cases. Almost everything is possible in pathological processes, at least our comprehension of the laws that govern them is too feeble to make us dogmatic about any of them. At present rules and theories in medicine are for the slowly disappearing didactic lecturer, rather than for the clinical instructor. Explaining the cause of atrophic rhinitis, it is probable that this prophecy will remain unfulfilled; on the other hand, it seems to me exceedingly probable that sooner or later all will agree that ozæna proper, the characteristic odor of the secretions, is caused by the presence of microörganisms. There are many bacteria which growing on ordinary culture media, give off a faint odor which is not unlike that of ozæna. Until, however, a microörganism is constantly demonstrated in the superficial layers of the atrophic mucous membrane, and it is shown that inoculations produce the disease, we must be satisfied with believing that microörganisms are responsible only for the characteristic odor of the altered secretions of atrophic rhinitis, in which they find a suitable medium for their growth. It is probable, from what has thus far been reported, that several microbes are capable of producing the odor when growing in the secretions. It is probable that the symptoms of atrophic rhinitis are self-limiting, that after a longer or shorter time, extending over years, these patients are relieved of their suffering and terrible affliction. Otherwise we should see more cases after forty years of age than we do. It is not reasonable to suppose that regeneration of the constituent parts of the mucous membrane takes place at an age when the tendency of other organs and tissues is towards atrophy and retrogression of function; but the question has often arisen in my mind, what becomes of these cases?

If they don't get well they must die, for it is not a disease, the symptoms of which can be disregarded. The number cured by any medicinal means must be very insignificant. The patient, after anosmia has become complete, may be reconciled to his own condition; not so with his friends, and he would inevitably be driven to the doctor's office; yet it is the great exception to see a case after thirty-five years of age. Possibly these cases may be cured by the suppression of secretion altogether from the complete atrophy of the mucous membrane, and, there being no more secretions to decompose, the odor and crusts both disappear. Clinical experience, however, induces me to regard this suggestion as very improbable. Contrary to the generally received belief, this disease is fully as amenable to treatment as any chronic affection of any kind not curable by surgical means. It is almost universally good in patients under the age of thirty. From thirty to forty they may expect a fair amount of permanent relief, after forty-five treatment probably has no effect in hastening nature's cure, but great temporary relief may be given

by the thorough cleansing of the nasal fossæ at regular intervals. After such positive assertions as the above, it is necessary to qualify them by saying that I am convinced of their truth provided the patient and his adviser do not expect miracles and are willing to work faithfully, persistently, and inte'ligently for the desired result. It is impossible to understand how any one with any knowledge of nature's laws obtainable in even the crudest medical education should expect to arrest and turn back to a normal condition in a few weeks a process which has advanced slowly for years.

One should never be led away by the glowing accounts of brilliant cures from a few applications of some lauded agent. One can always be sure that the explanation is a faulty observer, a mistaken diagnosis, or a vivid imagination. Neither clinical experience nor pathological knowledge should lead us to expect any such results, and they do not ensue upon any plan of treatment that does not extend over a long period of time. Observers whose names carry weight in the laryngological world make no such claims where a cure is affected after many months; it is even then not a question of the restoration of the diseased tissue to its normal anatomical structure; it is simply a stimulation of the remaining glands, epithelium,and blood vessels to do the work of their dead and gone cogeners. It is a symptomatic cure and not an anatomical one. Some one has said that a mucous membrane once inflamed, however slightly, never returns to its normal condition. The hyperbole of this statement makes it a little ridiculous without the definition of what constitutes a normal mucous membrane, but when atrophy has once occurred the declaration is literally true. This, however, is a part of the result which does not particularly interest the patient. For him the disease is made up of his terrible symptoms (bad odor), and the abolition of these will entirely satisfy him. As to the length of time it will take to do this, that is always a matter of many months, but will depend largely upon the length of time the affection has existed, upon the extent of the pathological changes in the mucous membrane, and upon the general health, age, and natural recuperative power of the patient. This last factor is always an unknown but a very important one, which can be ascertained only after treatment has commenced. Tke instances of quick cure of the symptoms of atrophic rhinitis referred to above, where not existing in the imaginations only of those reporting them, are those cases where advanced atrophy is not present, where the majority of the secreting glands still preserve enough vitality to resume work promptly when once their mouths are freed from the obstruction of crusts. As a rule those cases fall first into the hands of their family physician. How then can the general practitioner treat the disease?

The first thing to be done in starting to treat a case of advanced atrophic rhinitis is to give the patients thoroughly to understand what they are to expect. They must be told that the treatment must extend over a period varying from six months to a year, possibly over a year and a half. From four to eight months it will be necessary that they should come regularly to the physician every other day; after that once a week. The nose must be cleansed in the intervals at home as thoroughly as possible several times a day. Unless they will consent to be thus faithful and persistent, it is better that they should not begin treatment at all, as the result will be a disappointment to the patient and a loss of prestige to the physician. If this plan is adhered to you can assure them that in a few weeks they will be greatly relieved of their sufferings, after six months will have attained some permanent benefit; while in a year's time the nose will be in such a condition that by moderate daily cleansing they can remain practically cured.

Of course, these figures in regard to time are not meant to be absolute, but will vary either way with each case. Unless there is perfect confidence established, and a thorough understanding of the difficulties of the case impressed on the patients, it is useless to attempt to treat them; with such relations, however, I know of no affection of the nose or throat in which more satisfactory results can be obtained, and more gratitude elicited from the patients by treatment. Their troubles are real, both of body and mind. Their afflictions are visited both on themselves and their associates. It is said that "cleanliness is next to godliness," but in the treatment of atrophic rhinitis with ozæna, cleanliness takes the lead. No treatment will be successful without the frequent and regular cleansing of the nasal fossæ. By this I mean not only the removal of the crusts, but the careful washing out of all traces of mucopurulent matter. It is needless, and would be superfluous here, to go into various methods of accomplishing this. Suffice it to say, however, that the crusts should always be removed by the gentle use of a probe protected by absorbent cotton (you can do this much better by using the palate elevator) before any fluid application is made to the nose. Oily substances especially, but also watery solutions, make the crusts more tenacious and difficult of removal. Sprays of peroxide of hydrogen transform the inside of the nose into a mass of frothy, semi-gelatinous matter, which clings to the mucous membrane with the tenacity and persistence of fresh glue. Every procedure must be attended with the greatest care, so as not to cause the patient unnecessary pain, if she is expected to return to you with the necessary regularity and persistence. After the crusts are removed, the semi-viscid secretion can best be washed out by the use of the post-nasal syringe and the compressed air apparatus, using some weak alkaline, antiseptic wash, as Seiler's dissolved tablets, or Leffert's formula. Those cases in which the atrophy and crusts are principally found in the deeper parts of the nasal chambers, while some hypertrophy, or a less degree of atrophy, exists anteriorly, are particularly hard to cleanse properly, and the comparative anterior obstruction increases the disposition to the retention of the secretions when they form again after the cleansing. These cases are not infrequently met with. The nasal fossæ once thoroughly cleansed, we must now select some method of stimulation to the mucous membrane. The operator's mind must be disabused of any impression that there is any such thing as a specific agent for this purpose. Stimulation here means irritation. This must be gradually increased in strength until the limit of tolerance of the patient is reached, for after a time she will be able to bear with comfort, degrees of local irritation which it would have been impossible to use at first. The forms of irritation are three: Mechanical, electrical, and medicinal or

chemical. Mechanical: Gottstein's tampons, massage. Electrical: 1. Galvanism. 2. Galvano-cautery at a dull red heat. The multitude of drugs used for this purpose is not exhausted by the following list: Thymol, menthol, aristol, iodol, salol, ichthyol, eucalyptol, carbolic acid, trichloracetic acid, salicylic acid, tar water, resorcinal, iodoform, red gum, sanguinaria powder, nitrate of silver in powder and solution, bichloride of mercury, capsicum, sulphurated waters, iodine and its compounds. All these substances have been urged as of great efficiency in the treatment of atrophic rhinitis. In order to obtain good results, however, the cleansing must be thorough, frequent and regular. This done, good results may be obtained with anything as a subsequent application. The powders used as such, which are insoluble in the nasal secretions, act beneficially probably only by the mechanical irritation they cause. Those antiseptics are best which do not coagulate the secretions. Those which have toxic power it is necessary, of course, to use with great caution. Gottstein's tampons of antiseptic absorbent cotton also stimulate the watery secretions of the nose, but are apt to cause headache. Nevertheless, in some cases they are efficacious. Menthol has a tendency to cause contraction of the blood-vessels at first, and thus prevents transudation. Aristol I use in powder. Albolene and benzonal I also have my patients use; it is albolene with the acme vaseline spray, three times a day. I believe it is entirely inert except for some slight mechanical irritation. It certainly has a tendency to overcome the dreadful odor which accompanies these cases. Thymol I have used for several years and its advantages are: it is a good antiseptic; it has a pleasant odor; it is sufficiently soluble for sprays and douches; it stimulates the mucous membrane and causes a profuse watery secretion; it is not poisonous and has no constitutional effect; it has no vascular constringing power. I have my patients use the formula recommended by Seirs:

Thymol, grs. ss.
Alcohol
Glycerine, āā ʒjss.
Aquæ, ʒj.

It is convenient to make use of the stronger formula, and to dilute it at first and gradually increase it again to full strength. A fine spray with a pressure of twenty pounds is the best method of applying it. Occasionally even the weak solution causes pain at first. The general practitioner may use a solution of thymol, grs. iss to albolene in the acme atomizer daily with great advantage. Much stronger solutions can be used with the oils than with water, but they stimulate much less, and the best results are attained by the latter. This process of cleansing the nasal fossæ and the stimulation of the mucous membrane must be repeated every other day for many months, and then, as it is found that the patient is able to keep it clean in the intervals at home, those intervals may be lengthened to twice or once a week, and once in two weeks. It is necessary that the patient use a cleansing solution at home. Seiler's tablets or the Dobell solution may be used by means of syringe, spray, or douche cup. The latter is the best. An ordinary feeding cup, such as is used for bed-ridden invalids, with a long slender spout, may be used to flood the nose several times daily, using large quantities of the fluid each time, and blowing the nose forcibly in order to dislodge all the secretion possible. A few puffs from one of the vaporizers of albolene with thymol may then be used in each nostril to obtain gentle stimulation. The danger of middle ear trouble, in these cases, from syringing or spraying is practically *nil*, because the fossæ are usually so roomy that there is no obstruction to the return flow, and the inflow depending entirely upon gravity, no pressure can be exerted upon the mouths of the Eustachian tubes. In many cases it will be noticed that there are constant places on the nasal mucous membrane where secretions are especially apt to lodge and cling. These areas may be large or small. The application of a solution of nitrate of silver ʒi to ʒi on cotton, may be made from time to time to these places. A few applications will frequently prevent the further obstinate clinging of the secretions at this spot. The first thorough cleansing of the nose will be more difficult and painful than any subsequent one if the patient return at frequent and regular intervals. After a month or six weeks it will usually be noticed that the dried secretions are less abundant and cling less tenaciously. The patient will also say that the discharge from the nose has greatly increased. This is because the secretion is becoming more fluid and is consequently expelled before it dries. There will be periods over several weeks when the disease seems practically unchanged for the better, but this is sure to be followed by another period of great improvement. Gradually it will be seen that the nose has fewer and fewer crusts in it, the odor becomes gradually less and less strong, and the intervals during which it is absent altogether become longer and longer. The headaches disappear, and in some cases these signs of local improvement are accompanied by a corresponding improvement in the general health. When the patient is able to go for a week or ten days without help in cleansing her nose, and without a return of the odor or other symptoms, we may conclude that some permanent benefit has been attained. The case should not be dismissed, however, until the mucous membrane is seen to be constantly moist, pink, and free from dried secretions. When the general health is poor, tonics, exercise in the open air, a full diet, careful attention to digestion and the condition of the bowels is always demanded. Indeed, even in those cases where the general health seems perfect, fresh air and plenty of it, with more or less vigorous exercise must be insisted upon where they are possibilities. These patients even in moderately good health often do better locally when taking cod-liver oil or cream or iron. As a rule these troublesome cases present themselves to the general practitioner first. If you do not care to treat them, do not tell them, I pray you, that their case is beyond assistance. Assist those of us who are trying to take this branch of our noble profession out of the hands of impostors; encourage your patients; time and strict attention to details will cure every single case.

COD-LIVER OIL IN LUPUS VULGARIS.—A woman, 33 years of age, had a patch of lupus vulgaris on the left cheek, which was cured by the scraping method. The right cheek then became similarly affected. Iodoform was used, but with no success (*Rev. gén. de clin. et de thérap.*, No. 3, 1892). M. Zilgien then applied the following dressing. He dipped a band of iodoform gauze into cod-liver oil and alternated this dressing daily with simple iodoform powder. Wherever the oil was applied, rapid cicatrization took place.

INFANT FEEDING.

Lecture delivered in the Fourth Special Course of the Chicago Policlinic.

BY W. S. CHRISTOPHER, M.D.,
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What I propose to give you to-day will be probably more in the nature of suggestion than instruction. I may possibly be rather more iconoclastic than constructive, but I wish to take into consideration certain of the principles which underlie the subject of infant feeding, rather than all the details which go to make up successful work in that direction.

We find it stated that human milk is the best food for the infant; we find it further stated, and generally accepted, that in the absence of human milk that food which most closely resembles mother's milk in its chemical and physical properties is the best for the infant. Now I wish to deny this latter statement, and it is rather difficult to show cause for the denial, for a lie that is partly true is the hardest of all to down. It is unquestionably true that mother's milk is by all odds the best food for the *healthy* infant. Let us get that word healthy well fixed in our minds. That it should be made the guide in the formation of any artificial food for the healthy infant is likewise true, but that it should be followed absolutely, that we should bow down to it exactly and never vary from it even in the slightest particular, is not true. It is not true, for instance, that we must have a milk which shall coagulate exactly as mother's milk does in order to be successful as food for a baby; it is not true we must have exactly the same proportion of the several ingredients which enter into mother's milk imitated in our artificial food. In consequence of the general conception we find that the efforts of chemists and of physicians have been directed towards imitating mother's milk as closely as possible. We are told to take the milk of goats because it resembles mother's milk more closely than does cow's milk. But it is not practical. We cannot obtain goat's milk in sufficient quantity, but we must look to cow's milk for artificial food for the child. Furthermore, goat's milk contains widely different substances from anything found in mother's milk or cow's milk, certain organic substances the nature of which we do not understand. But the presence of these is ignored completely when the quantities of proteid and sugar and fat are tolerably near those in mother's milk. Meigs has done considerable work in this direction. He prepares a food by taking certain proportions of cream, milk, water, and sugar of milk, the latter in large quantity, and makes what is known as Meigs' cream mixture, or artificial food for babies. Meigs analyzes milk in a peculiar way, differing materially from some of the best chemists in the world, and his artificial food is based on his analysis. The mixture has not proven satisfactory in my hands. And I may say here that with cream mixtures as a rule, more or less trouble will be experienced. I have had my attention called quite recently to a number of children who have been raised upon a mixture of cream and oatmeal alone, and it is strange to see what peculiarly healthy children can be produced by this mixture. That is to say, apparently healthy, for as we shall see later, they are certainly not completely nourished children.

We must throw aside then the idea that we are to imitate mother's milk.

The first rule for any food is that it must comply with the conditions met with in the intestinal canal of the particular infant in question; the food to be successful food for a baby must be suitable to the conditions found in the intestinal canal of that baby. Let us see what we mean by this. In the majority of instances when we are called upon to direct the feeding of a child artificially, that child has already had its alimentary canal disordered, it has already been tampered with and it is comparatively rare that we have an opportunity to take a new-born baby and from the start direct its feeding as we wish; it is nearly always in an abnormal condition when we take charge of it. How? There are conditions which we may call dyspepsia, if you please, diarrhœa, or what not, but in nearly every instance the child has some abnormal condition of the alimentary canal. Let us suppose that when the baby is brought to us it is having putrid stools, shall we put it at once upon a certain kind of food because it is considered the best for a baby; shall we put that baby to the breast or on food which so resembles mother's milk that it might, *a priori*, be considered the best? By no means. We must first put that alimentary canal in the best condition, and the food we adopt for the time should be the one we would prescribe for the diseased condition there present, at any other time. This is an important thing in artificial feeding, but frequently overlooked. So often the child is brought to us with the statement, "Doctor, we want you to direct the feeding of this baby; we have tried this and that food but none of them have agreed with the baby." We can't tell what food agrees with that baby, but what they have proved is that this or that food does not agree with the conditions present in the intestinal canal. Let us remember that the first condition of infant feeding is to put that child's bowels in a normal condition, and right here come in the principles I have explained in my preceding lectures, because the conditions I have there described underlie the great majority of disorders of artificially fed babies as we find them. The first thing we must do is to purify the intestinal canal of the infant, put it in a normal condition, and then we will be in a position to feed it properly. I am thoroughly convinced that the great difficulties so commonly met in finding a suitable food for a baby, result principally from overlooking this factor.

Then another thing—when we have gotten the intestinal canal of this child in a normal condition, one which is aseptic so far as the food we wish to give it is concerned, that is to say, which contains no germs which can make poisons out of the food we intend to give it, then we must consider the food to be given to that child; it must be something adapted to the physiological conditions that are present. First our selection of a food is to be guided by the pathological conditions present, next, it must be within the scope of the physiological possibilities of the healthy child. What are they? A healthy infant is not capable of digesting coarse vegetables such as cabbage; it may take them into the intestinal canal, but they are apt to produce harm; it is not capable of digesting many fruits, particularly those that have a considerable bulk to them. Of the simpler foods, meat in particular is one which it is very rarely within the power of the healthy infant to handle. Very frequently when we give beef scraped, beef tea, cooked beef, or pressed beef juice, or any other form of beef to a baby we

find that the child develops more or less diarrhœa. There is no form of food which we give to children which produces the intense putridity of stools as that which we notice following the use of meat or meat preparations. So I say, that almost absolutely meat is a food which is physiologically improper for a young child. We hesitate to give meat to a young puppy or kitten because we say it will give them fits. I don't know whether any such objection lies with regard to the use of meat with young babies, but this I do know, that in many instances it is the cause of disarrangement of the bowels of a child, and we must consider that, physiologically, it is not a suitable food. The foods which the infant can digest are principally cow's milk, eggs, sugar and starch. Under the head of starch we must put cracker, bread, rice, arrow-root, baked potato and oatmeal. Now, with these foods at our disposal, for the proteids and carbo-hydrates and with cream, bacon, and cod-liver oil for the fats, we have a complete list of what we can give an infant for food. The most easily digested fat is, apparently, cod-liver oil, next is cream, next butter, and next fried bacon. We all know how readily young children will digest fried bacon. It is a means of feeding which has grown up with the people; it is in quite common use. Beyond this list we would say that other foods, more complex, are unphysiological.

To summarize: The food must first be adapted to the conditions of the intestinal canal; it must not contravene the physiological possibilities of the child. Having first by a proper dietary removed the pathological conditions, we are then to limit our food selection to the substances named, and which are within the physiological possibilities of the child.

The next condition which is relatively essential, is that the food given shall be sterile, which means that it shall be pure. Let me say pure instead of sterile because a great deal of the food given is pure enough but not sterile. All milk is contaminated with microorganisms in the act of milking and they are not taken out unless the milk is subjected to the actual process of sterilization, and as that is practically carried on, they are not taken out even then. But milk, even under such conditions, furnishes a most excellent food and does a healthy child no harm: a healthy child, understand. But it is not sterile, although it contains no germs ordinarily, which can make poisons out of the milk; it contains no germs which are pathogenetic, or which in themselves are detrimental to the child, therefore for the purpose of feeding it is pure. Let us say the second requirement is that the food shall be pure. This brings us to the subject of sterilization. Sterilized milk is valuable simply because of its purity. The principal utility of sterilized milk lies in the fact that it does not introduce poisons into the intestinal canal of the child. When the child's bowels are once in a normal state, by sterilizing the milk we maintain them in normal condition, simply by a negative process.

Sterilization as applied to the preparation of infant food, consists in subjecting the milk to a temperature approaching that of boiling water, over a period of from thirty to sixty minutes, and after having subjected it to the temperature in preventing further contamination by keeping the air from it. This is the ordinary process involved in sterilizing milk, and it has been shown conclusively that this process does not destroy all life in the milk; it probably destroys all adult microörganisms, but the spores are not killed, and to actually sterilize milk in this manner, it would be necessary to repeat the process twice at intervals of twenty-four hours. But the milk which we feed to children and call sterilized milk, is not sterilized, it is only grossly purified. We must not delude ourselves with the idea that it is actually sterile. Furthermore it is highly improbable that such a thing is desirable. We know that the healthy intestines swarm with microorganisms and if the milk is sterile when it enters, it is but a moment until it is far from sterile, but the organisms which grow in it under such conditions so far as known are of a harmless type, and it is quite immaterial how many microörganisms are growing in the intestine at the time of its lodgment there.

We find not infrequently that children who have been fed upon foods most closely resembling human milk will not thrive, but when put upon sterilized milk they do thrive. Yet the latter may be very gross imitation of human milk and very far from maintaining the exact proportions of human milk, while the other is prepared carefully to have just so much casein, so much fat, so much carbo-hydrate and so much water, and perhaps has been partially peptonized, so that when the casein coagulates it coagulates in flakes and even looks like mother's milk in color. Upon the one food the baby thrives, upon the other it dies, and the difference in results lies solely in the fact that sterilized milk is free from poison. But if we put sterilized milk into a poison-producing bowel, we might as well put in the poison itself, for sterilized milk can then be of no use.

The third condition which a food should meet is that it shall contain the necessary ingredients for complete nutrition. Now here is a most important problem to me; it is the prettiest point in the whole subject of infant feeding. What are the ingredients necessary to complete nutrition? Let us take for our guidance mother's milk. We know that healthy babies are raised upon mother's milk and we have every reason to believe that it is the best food which can be given to the child, because in the majority of instances children raised exclusively at the breast are the strongest and healthiest. Other things being equal, mother's milk is the type of food so far as this one feature of the problem is concerned.

What are the essential ingredients of a complete food for the child? We ought to be able to find our answer in an examination of mother's milk, and yet the method of examination applied has been found to be decidedly incomplete, and we have found that the chemical examination of mother's milk has not always told us what we are to look for. The analysis of mother's milk shows us that this substance is made up of fat, carbohydrates in the shape of milk sugar, proteids in the shape of casein and coagulable albumin, and water. These several substances exist in quite constant proportions, and it is perfectly justifiable to assume that these proportions are the best for the nourishment of the child. Comparing the analysis of milk with the dietary of the adult, it is shown that the infant requires these several classes of food in very different proportion from that found necessary for the adult. For instance, a baby does not require anything like as great a percentage of carbo-hydrates as the adult does; it requires about the same percentage of proteids, and a very much higher proportion of fat. A

child a year and a half old requires about three-fourths as much fat in twenty-four hours as a full grown adult, to meet the requirements of its nutrition. This is a point we want to keep before us constantly. Growing bone needs fat to make its nutrition complete, and that is one reason why the baby requires so much actual fat to make up this condition. Now we not only require that these substances shall be present but that they shall be present in the proper proportions, and these are the proportions found in mother's milk. But chemical analysis has not yet yielded us all the secrets of mother's milk for there is at least one other element present, which we do not know chemically, and this is a substance which the English have called the anti-scorbutic element. What is it? In the days when sailors went on long sailing voyages and could not take with them animals to kill, or fresh fruit and vegetables, and consequently were deprived of these fresh substances for long periods, they developed the peculiar condition known as scurvy or scorbutus. If, however, they were given in time fresh meat or vegetables or were given fresh milk they soon got over the scurvy. This as yet chemically unknown substance, the absence of which permits scurvy to develop, is found in fresh milk. The anti-scorbutic element therefore, is to be regarded as one of the important elements of an infant food, but not, as I shall show you later, one which is always essential. One of the most interesting cases of scurvy I ever saw was in Chicago, in a child whose food made it almost necessary that it should have scurvy. It was firmly held that everything that child should receive must be sterile, its milk was sterilized, the Imperial Granum mixed with water with which it was fed was sterilized, everything indeed that the child fed upon was sterilized, and in the process of sterilization this wonderful antiscorbutic element was killed. The child was given plenty of food in every way except this antiscorbutic element, and it developed an attack of scurvy and almost lost its life in consequence.

Remember that the mere chemical constituents of any food are but grossly the index to its food value. We cannot reach the full requirements of food stuff by any chemical examination, nor by any means except actual trial tell whether or not a given food is sufficient for a given organism.

If the mother has scurvy, her offspring will have scurvy; if she is cured, her child nursing at the breast is also cured. A female, then, who contains the antiscorbutic element, can transmit this to her milk, and this is done by the healthy human being and by the healthy cow, so a healthy milk will contain the antiscorbutic element, and furthermore, raw milk contains it, while it is destroyed in the process of sterilization, in the process of condensing, in the process of drying, so that every food we have which contains sterilized milk, or condensed milk or dried milk, is necessarily deficient in the antiscorbutic element.

A great many of the so-called infant foods in the market are deficient in one or another ingredient, and I should hesitate to say that any of the foods containing the dried milk solids are sufficiently rich in proteid material. You can give any quantity of proteids in the way of dried milk and some babies will digest them, while they will pass through others. The dried milk solids fail to answer that physiological necessity which I made the second requirement of an infant food; they cannot be assimilated by the individual in question, although you may be giving plenty of proteid, chemically speaking. The great majority of prepared foods are deficient in fats. What is the result? A food deficient in fat produces rickets, a food deficient in proteids produces rickets, and any food that is rich in carbohydrates, simply because it is therefore relatively deficient in fats and proteids, produces rickets. If we use wheat so as to make it the basis of food we are giving more carbohydrates than mother's milk can possibly contain; if we make oatmeal the basis of food—and I have seen babies raised on simply oatmeal mush and cream, not another article of food given them—we are giving the child a deficiency, I won't say of fat, because the cream will in all probability make up for the fat, but a deficiency of proteids; there is not enough material to make tissue, and what is made is necessarily a degenerate, unphysiological tissue. They used to tell us that a person who drank beer was pussy and bloated and did not have good fat, but it always appeared to me that fat was fat, and whether the individual got his fat from drinking beer or eating sugar, it was all the same. But this assumption is certainly incorrect. An individual who gets his fat in one way is different from one who gets it in another way; there is a healthy fat and an unhealthy fat. You take a fat baby, and that baby may be thoroughly rachitic, it may be suffering from fat starvation. The negroes in the South on the sugar plantations ate largely of sugar, sucked the sugar cane and became decidedly roly poly; they abounded in fat, fat formed in every part of their anatomy where it could form, and yet they were thoroughly rachitic. We can give a baby a prepared carbohydrate food, or we can give it an excess of arrowroot, an excess of oatmeal, an excess of bread or crackers or starch of any kind, and that baby will get fat, because we know it is a rule that carbohydrates, sugar and starch, if they be in excess, are transformed into fat, and furthermore we know that if an excess of proteid material be given to an individual, it is transformed into fat. This is true of children and adults as well. But fat so made is not valuable for the nutrition of the growing child; I cannot explain to you why, but it is unquestionably true. That child, then, needs fat as such; it must receive the fat in the shape of fat, or it is of no use to it. The fat which forms on its body cannot be utilized by it in the same way as fat received by it in the shape of cream or butter, or cod-liver oil; that is the reason we take a fat baby with rickets and give it cod-liver oil, cream, or any other fat the peculiar circumstances shall dictate to us. The fat laid up on the baby is not fat which that baby can use for the purpose of making bone tissue, but the fat which it takes, in the shape of cod-liver oil, the food which is fat at the time it is taken, it can use in the manufacture of bone tissue, it can use in the development of that nutrition which is necessary to prevent rickets. What is rickets? Rickets is a disease of innutrition, therefore it is properly considered by us when speaking of infant feeding. It is the result of a vicious process of feeding, a process which does not supply a complete nutrition; it follows the use of foods which do not contain all of the ingredients in their proper proportion that we have mentioned to you. Rickets may be defined as a form of innutrition characterized by certain neuroses, viz.: sweating, particularly about the head, restlessness at night, and convulsive

manifestations, particularly laryngismus stridulus, and general convulsions; by delayed dentition, and finally by the occurrence of certain bony deformities.

The bone changes are late, and we don't want to wait to make a diagnosis of rickets until after the bone changes have come on; we don't want to make a diagnosis of a cyclone after the houses are all torn down. And so it is with rickets; anybody can make a diagnosis of rickets after it has swept over the baby and left him with bandy legs and big head, but we want to make the diagnosis of rickets before the bone changes are apparent. Rickets is a disease not so much of malnutrition as of innutrition, it is a disease which arises because the complete nutrition which the child needs has not been given to it; usually it is a case of fat starvation, but it may be a case of proteid starvation. Rickets, then, is a starvation disease, and the rational treatment of rickets is to supply the proteid, to supply the fat which has been lacking in a given case. Scurvy is likewise a disease of innutrition, but for it to be produced there must specially be withheld from the child that single mysterious, unknown antiscorbutic element which is present in fresh meat, which is present in fresh milk and fresh vegetables. We don't know what it is, but it exists, and we know how to keep it away and how to supply it. If we keep this element away we are liable to get scurvy, and scurvy in its early stage is indistinguishable from rickets. The babies sweat, they have pain in the limbs resembling rheumatism; in some instances an area of hyperæsthesia which is said to be characteristic of rickets, but which I believe is never characteristic of rickets, but always of scurvy. The acute rickets of the Germans is probably the scurvy of the English. I remember a case which was called rheumatism, in a baby about eight months of age, and as I look back on that case now I am satisfied that it was scurvy. I believe that scurvy is classed not infrequently as cerebro-spinal meningitis because of the hyperæsthesia present. If we make a diagnosis of cerebro-spinal meningitis simply because hyperæsthesia is present we are careless. Let us go back and see what the nutrition has been, and whether it has been such as might possibly lead to scorbutic disease. We are rather comprehensive when we say that the lack of fat or proteid will produce rickets. I would like to prophecy that the disease which we now call rickets, we shall be able hereafter to classify into several diseases of innutrition. Besides those forms of innutrition that are so positively distinct that we are able to make a definite diagnosis of rickets or scurvy, we have various peculiar manifestations evidently due to incomplete nutrition, but not to be classified with certainty with either rickets or scurvy.

We have a great number of starvation neuroses; they may present themselves as incontinence of urine, or in the shape of epilepsy or hysteria; they may come in the shape of any of the vast class of neuroses, and yet be starvation neuroses; in fact, I am inclined to believe that the majority of neuroses, as we see them in infants, are starvation manifestations rather than so-called functional diseases.

A child's nutrition may fail because of failure at one or more of several points. In the first place, the food may be deficient in quality or quantity; in the next place, we may find the actual digestion incomplete, so that the child will not thoroughly digest the food, and, of course, it cannot be absorbed; or the failure may come from diminished absorptive power. Again, we may find the bulk of the food which goes through the portal vein and liver may fail to find in the elaborative organs the necessary change which it should find there to fit it for assimilation by the cells; or, having gotten the food into the circulation and ready for absorption, individual cells may not be able to take it up. The starving cell, when the food is right along side of it, may not be able to utilize it; and why? Because, with continuous starvation, its chemical constitution has been so modified that it is no longer able to directly unite with the food brought to it. This is possible — no doubt, is common — in certain cases of disease, for instance, in influenza, in which it seems to play a great rôle. Another factor is deficient cell power because of heredity. The individual inherits an abnormal cell which is incapable of maintaining its own nutrition, even in the presence of abundant food supply. That sort of heredity is common to the syphilitic baby, the tubercular baby, and possibly to the rheumatic child, or the child whose parents have Bright's disease; but certainly it is true of the syphilitic and tubercular child, that the tissues themselves are unable to assimilate the food which has been brought to them in a proper condition. Fortunately, in the case of the syphilitic child, we can so modify the structure of the cells by means of mercury that they can again assimilate. This explains why a syphilitic baby, in a state of marasmus more or less marked, does not get well upon mercury alone. It may improve for a while, but presently it stops improving; but when you add to that mercury a proper dietary, it picks up immediately. In the first place, the mercury will put the individual cells in such a condition that they can use the food brought to them; but if the food is not brought to them, all the mercury in the world can't cure the child. Furthermore, if we simply try to relieve the baby by giving the proper food while the cells are unable to assimilate the food brought to them, no matter how carefully prepared it may be or how thoroughly well it may be absorbed and elaborated, if that cell is still syphilitic, it cannot properly assimilate it, and the child goes on to a peculiar form of starvation. Now, when we put our mercury in, we modify that cell, assimilation goes on, and the child improves; so two factors become necessary in the syphilitic baby. In the case of the tubercular baby we have no such means at our disposal for cell improvement; we have no specific which will compel the cells to take up the nutrition brought to them, and it is only by indirect ways that we are able to improve the nutrition of the tubercular individual.

I have shown you the necessity of a complete food containing a large quantity of fat and of proteid material, and the necessity for purity. Now with these general principles, let us consider how we would feed a new-born baby that we had to feed artificially. If we know from the start that the child will not have the benefit of mother's milk, what shall we do? Shall we proceed without delay to feed that child? I am satisfied that during the first three days, during which the mother's milk is not secreted, and during which we normally allow the child to go unfed, a certain lack of strength ensues to that baby, and while I am perforce compelled to withhold food from the baby that is to be fed at its mother's breast until the mother's milk comes, so that we may not contami-

nate the intestinal canal of the child with improper germs, if I know I must feed that baby with artificial food, I proceed at once to do it. How? Always at first with sterilized milk. I should take cow's milk, and, because it is not so dilute as mother's milk, I would add to it a considerable quantity of water; I should add an equal bulk of water, thus supplying the child not only with milk and food, but with drink. The very important element of water is not to be overlooked; water is not only a food, but it is likewise an eliminant generally, and you will find that if you deprive a new-born baby of water, it will cry. I have found this cry to be not always one of thirst, but sometimes of pain. I have, in several instances, taken care to keep everything, even water, from a new-born baby. It would, after some hours, begin to cry, and on giving it water, in an hour or two the crying would cease, and shortly after it would pass urine, and I have found in these cases uric acid crystals on the diaper of the child. In all probability, these babies had uric acid infarction of the kidneys, and because they could not get water, had no means of flushing out the tubules of the kidneys, and the passage of these uric acid crystals through the kidney was what caused the pain. Two hours after drinking water they would stop crying, and we would find these crystals. Now then I would take about half water and half milk, not because mother's milk shows there shall be so much water, but to be sure that the baby shall get enough water; then I should add a small quantity of cane sugar to it, and put into each bottle one ounce of such a mixture, and I would feed that baby every two hours. It is my custom to feed them at six o'clock in the morning, at eight, at ten, at twelve, and every two hours up to ten o'clock at night, and then I stop feeding the baby, letting it cry if it wants to, all night until six o'clock the next morning, and then go on feeding it every two hours until ten o'clock at night, when I stop feeding it. When the time for feeding that baby comes around I have it awakened if it is asleep. At six o'clock I would deliberately waken that child and put it to the breast or the bottle, and try my best to make it take food. We know that the food which the child will get in this way is quite sufficient for its strength. A new-born baby may have a tendency to sleep during the day and be awake at night, but inasmuch as a baby is absolutely without habit when born, and may be made to assume any habit you choose to impose upon it, you should be careful to train it to good habits only, particularly impressing the habit of sleeping at night and being awake in the daytime. It is a little hard to get mothers to follow such directions, but it can be done nine times out of ten, and the tenth time it fails. Of course, babies are not machines, and that ten per cent. serves to separate humanity from pure mechanism. In a few days a baby will acquire the habit of waking every two hours, and it will know when ten o'clock at night comes, and will sleep all night. It is exceedingly common for mothers to break the rule and feed their babies once or twice during the night, but where I have intelligent people to deal with, I find that they can make the baby sleep all night, and it will be perfectly healthy. The great danger of too frequent feeding is prevented by this plan, and the child's stomach has the rest which it actually requires; this is true both of babies artificially fed, and of babies fed at the breast. It is a very nice thing for a mother to know that she can leave her baby at eight o'clock in the morning, go down town and get back at ten o'clock, and know that during that time the child will not need her. If she happens to stay too long, her breasts will fill up; they act with regularity just as the child does. I feel that I ought to speak very strongly upon this point, because you can carry it out if you will take the trouble.

Much has been written upon the manner of gauging the quantity of food which a baby should receive. Two general systems are in vogue, one in which the quantity is regulated by the age of the child, and the other, more rational, in which the quantity is determined by the weight of the child. Personally I take a different ground, and think that I meet the requirements very well. I am in the habit of allowing a baby who has been properly trained to be its own judge of what it shall receive. I cannot let a baby who has been improperly trained be the judge of what it shall receive, but when I have gotten a baby into proper habits of feeding the best I can do is to be guided by its own demands. For instance, I have had a baby under my care for about five months, a typical artificially fed baby. It was fed upon what was called sterilized milk before it came into my hands, and the milk was so sterilized that it is no wonder it was subject to considerable diarrhœa. After curing the diarrhœa and getting the bowels into normal condition, it was put upon sterilized milk every two hours. It is now receiving its milk every three hours and as regularly as the clock strikes the baby gets its bottle. Up to three or four weeks ago the quantity was forty ounces of milk and twenty ounces of water put into eight bottles, that is seven and a half ounces to each bottle. For a period of two months it received that quantity, and at the end of that time it began to cry after each bottle. My direction is if the child cries after it is fed a bottle of milk, pay no attention to it, it may be something accidental, but if it cries after every bottle it gets for two or three days, the stools being normal, and the cry not one of pain but dissatisfaction, watch the child until you are satisfied it is the cry of hunger and not of pain or anger, and a properly fed baby does not get out of temper, it will not cry like a baby fed hit or miss, but you can depend upon its statement that it is hungry. I am far enough from taking the statement of the mother that every time the child cries it is hungry, because that is the sole interpretation of the mother. But having found a baby that is properly fed, and which cries frequently and steadily for several days after each bottle, I don't care whether the child has been receiving the exact quantity for that age, as laid down in the books, or a greater quantity, it is not the proper quantity for that particular child. Now what do I do? This having occurred in the case under discussion, I increased the quantity of milk and decreased the quantity of water. Perhaps I was not wise in that particular instance—time will show—but I made up for the decrease in water by directing that the child should be given water between meals. The quantity of water that child was getting represented a much more diluted mixture than mother's milk. We cannot measure the water exactly that we give a child, but if we give the relative proportion of solids and plenty of water, whether the water is given with the food or not, we have done our part. I

told the mother, in this case, to increase the milk from forty to forty-five ounces, and to decrease the water from twenty to fifteen ounces, and give the same quantity; instead of two-thirds milk and one-third water, it would be three-fourths milk and one-fourth water. A child, even on so small a quantity as five extra ounces of milk a day, will be satisfied, and so long as it is satisfied, be sure you let well enough alone. I feed this baby on sterilized milk, and nothing else. It is the food upon which I put all healthy babies at first. I told you sterilized milk was deficient in the anti-scorbutic element, so that it looks as if I were a trifle careless; but that is not so. I would be careless if I ignored that fact; I would be wrong if I did not know that fact; but when I know that the milk is deficient in the anti-scorbutic element, when I know that it does not form a complete nutrient for the child and I watch the result carefully and change with the first signs of trouble, then I am doing my full duty.

Certain observations made by Davis of Philadelphia, go to show that sterilized milk is always an incomplete nutrient for children; that children fed upon sterilized milk invariably present certain symptoms of innutrition. I don't think this is invariably true, but I am willing to admit that every baby fed exclusively upon sterilized milk is liable to show some form of innutrition, either as a distinct form of scorbutus or one or the others of the starvation neuroses. But many children do not. The majority of children, in my experience, do well on sterilized milk and the danger from its use is certainly not as great, as Davis asserts.So that it seems that many children may do well, for a long time, without the anti-scorbutic element. Now if this child goes along nicely, does not sweat about the head, is not restless at night, does not develop scurvy, does not develop painful muscles and joints, gets its teeth in regular order, has the fontanelles of the head close up at the eighteenth or nineteenth month of life, is not pallid but has a nice rosy color of the skin, and in general shows that its nutrition is perfect, I shall let the sterilized milk go on. But if the mother should come to me and say that the child's color is not just what she wants, and that for the last four or five days she has noticed that the child is not so active as formerly, doesn't seem to feel so well, doesn't take his food with a relish, then I should investigate and try to find out to what these symptoms were due. A mother will often notice a slight change which you could not possibly see. If she should call my attention to these things, I should watch and endeavor to find out whether the change was due to some pathological process, some infective disease coming on, or to innutrition, and when I satisfy myself that it was due to innutrition I would stop sterilizing the milk and give the child raw milk. In other words, I should take away the safe guard that I have in sterilization, as to bowel disorders, for the sake of preventing the child's nutrition positively failing. I want to say here that we can tell within two weeks when a child begins to fail on sterilized milk, and in two weeks more, by simply putting it on raw milk we can bring it back to a normal condition. I have done this. If we keep our eyes open, while we tread on dangerous ground in using sterilized milk, we are perfectly safe. When we put the child on raw milk we run the risk of setting up disease of the intestinal tract, but we certainly avoid a positive danger in avoiding certain forms of innutrition.

In conclusion permit me to summarize:

1. In instituting artificial feeding, the alimentary canal of the infant should first be put into normal condition, and during this period the food should be such as is adapted to the conditions in the alimentary canal, irrespective of its properties or value as a complete nutrient.

2. The alimentary canal being in normal condition, the food used should be within the physiological capabilities of the baby.

3. The food adopted should be pure, and if the conditions will permit, it should be sterilized.

4. The food intended for the complete nourishment of the infant, should contain the necessary proportions of proteids, carbo-hydrates, fats, and salts, and the composition of human milk should be used as the guide in determining these proportions.

6. The anti-scorbutic element should usually be present. In its absence the child should be carefully watched, and this element supplied when found necessary.

6. Sterilized milk, and foods made up of dried milk solids are deficient in the anti-scorbutic element.

7. Water is an essential ingredient of the food supply of the infant, and should be administered freely.

8. Foods which are deficient in one or more of the necessary ingredients, lead to the development of various forms of innutrition, particularly rickets and scurvy.

9. The infant should be fed at regular intervals, and not overfed.

10. The best artificial food for a healthy infant, is pure milk, from healthy cows, properly diluted, and sweetened, and sterilized if the conditions of nutrition permit.

SOCIETY PROCEEDINGS.

Georgia State Medical Association.

Forty-third Annual Meeting, held at Columbus, April 20, 21 and 22, 1892.

(*Concluded from page 420.*)

SECOND DAY—AFTERNOON SESSION.

Dr. A. W. Calhoun, of Atlanta, read a paper entitled

SOME OBSERVATIONS UPON CATARACT OPERATIONS AND AFTER TREATMENT.

He reported 904 operations for cataract. The records of his first 47 cases had been lost, so that the report simply embraced the records of 857 cases. Of this number 203 were cases of soft cataract in children, and 654 cases of hard senile cataract in adults. The ages of the children ranged from three months to twenty-five years; the ages of the adults ranged as follows: 138 from 25 to 40; 82 from 40 to 50 years of age; 98 from 50 to 60 years of age; 157 from 60 to 70; 104 from 70 to 80 years of age; 28 from 80 to 90 years of age; 11 from 90 to 90 to 94 years of age, making 654 of hard cataracts, which, including 203 soft cataracts, makes 904. In the beginning of his cataract operations, Dr. Calhoun said if he got 95 per cent. of successes he thought he was doing well; but since the injection of cocaine and the advent of antiseptic surgery, a hundred per cent. of successes has been the result in his cases.

Dr. A. A. Smith, of Hawkinsville, read a paper entitled

GUNSHOT WOUND OF THE STOMACH WITH REPORT OF A CASE.

The patient, a negro, had received a pistol shot (said to be) in the stomach. After a careful examination the doctor found that in the fight which had occurred two hours previously, his patient had received a wound directly over the stomach. A casual examination with the eye alone was all that was necessary to show that the ball had penetrated the cavity of that organ. A more thorough examination was made with the probe, and it was found that the ball had entered at a point about two inches below and to the left of the tip of the ensiform cartilage of the sternum. The probe passed readily into the cavity of the stomach, and the doctor supposed that the ball had passed through and lodged in some other portion of the body and did not pursue the examination further. At a third visit, which was about forty-eight hours after the boy had received the shot, he ascertained that there had been two or more free evacuations from the bowels, and to his great surprise the ball had passed with one of these evacuations. The wound healed by first intention, and just one week from the date of the injury the boy returned to his work.

Dr. R. O. Cotter, of Macon, read a paper entitled

SOME PRACTICAL POINTS IN REFERENCE TO EYE STRAINS.

He was impressed with the observation that the vast majority of general practitioners overlook the easily substantiated fact that such a great multitude of morbid reflex neuroses are brought about by eye strain; that is to say, uncorrected errors of refraction. He referred especially to hyperopia and hyperopic astigmatism. Myopes generally complain of not being able to see well enough at a distance. Headache was by far the most common accompaniment of hyperopia and astigmatism. These headaches were most common in the temples, frontal region, and vertex. They frequently appeared to be what are known as sick or bilious headaches, and are in any case truly distressing in character. Correcting refractive errors was the most prominent and by far the most scientific part of an oculist's work, and he feared that many practitioners overlooked these cases; that they met with one hundred of such sufferers where they saw one case of cataract.

Dr. Willis F. Westmoreland, of Atlanta, read a paper on

PLASTER OF PARIS IN SURGERY.

The object of the paper was not to discuss the various appliances adopted by different surgeons, but to present what he regarded as the best plan; one that showed results more satisfactory to the surgeon and patient than any other plan that has been presented in the past or present. It was not every plaster of Paris splint (so-called) that is applied to a fractured bone that does well. It must be properly applied, of appropriate material, with the fragments of the fractured bone properly adjusted to give the results which are so much to be desired. For a time this splint was used only in simple fractures, but now surgeons use them in compound comminuted fractures with the very best results, often saving a life or a limb that was formerly sacrificed to the knife, or other plans of treatment that resulted in the death of the patient. Dr. Westmoreland then gave the details of its application.

Adjourned.

Dr. R. J. Nunn, of Savannah, read a paper entitled:

PRELIMINARY OBSERVATIONS ON THE BEHAVIOR OF IODINE IN THE PRESENCE OF CAMPHOR, MENTHOL, THYMOL, ETC.

Alcohol.—If we take a saturated alcoholic solution of iodine, add to it as much camphor as it will dissolve, and its solvent capacity for iodine is immensely increased. In fact, it will be found that of a saturated solution of camphor in alcohol, 125 minims will dissolve 50 grs. of iodine.

Carbolic Acid.—Liquefy a quantity of carbolic acid with a little alcohol (about 1 per cent.), saturate the liquefied carbolic acid with iodine; next saturate this iodo-phenic solution with camphor, of which it will dissolve 300 to 400 per cent. This camphorated iodo-phenol will now dissolve or appropriate iodine until it becomes a dense syrupy liquid; or

Experiment 3. Prepare a saturated solution of camphor in carbolic acid. (This formula, which is original with Dr. Nunn, and has been used by him for many years, is possessed of valuable medicinal properties, and is known locally as pheno-camphique). The result of the saturation of this solution with iodine will be similar to that obtained in experiment No. 2.

Salol.—If camphor and salol are mixed in proper proportions, a liquid results which also has the power of dissolving iodine in large quantity, a blackish liquid resulting.

Thymol.—Thymol liquefies when mixed with camphor, and the resulting fluid is also a powerful solvent of iodine.

Menthol.—A mixture of menthol and camphor also liquefies, and in this liquid iodine is very soluble.

THIRD DAY—MORNING SESSION.

The first paper read was by Dr. L. G. Hardman, of Harmony Grove, entitled:

ECLAMPSIA AFTER DELIVERY, WITH REPORT OF CASES,

in which he summarized as follows:

1. That eclampsia does frequently occur after delivery.

2. That, judging from the cases presented, it occurs for the most part in patients with pyelitis.

3. That when we find pus in the urine of pregnant women, and can exclude specific disease of the kidneys, any bladder or urethral disease likely to cause it, and thus feel pretty certain that the pus comes from the kidney; and if it continues and begins to cause any general disturbance of the health, he believes it is our duty to induce abortion or premature labor, and thus save our patient a great risk.

Dr. A. G. Hobbs, of Atlanta, followed with a short paper entitled:

SOME REMARKS ON TONSIL EXCISIONS, WITH PRESENTATION AND DESCRIPTION OF NEW INSTRUMENT.

The instruments exhibited were the practical outcome of the speaker's efforts, through several years, to do away with some of the objections to the instruments most commonly used for excising hypertrophied tonsils, as the ring tonsillotomes, the guillotines, wire loops, etc. He still, however, uses the ring blades in young children, and in other cases where the tonsil projects decidedly with a base but little, if at all, larger than the body.

The objection to the guillotine or ringed instrument, was that the latter especially so often leaves a margin of bruised tissue, which in many cases ends in slough; and with neither of them is the operator quite certain of the exact amount of the tonsil he will clip, especially if the attempt is made on a mass that is soft, broad and nodulated. The cold wire snare causes great pain and requires a much longer time, and moreover, it leaves a contused stump unless the whole organ be extirpated, which he never does intentionally. The hot wire, even with the most approved guards, endangers the pillars and is, like the cold wire, quite a formidable instrument, at least in the mind of the patient.

The blades of the instrument exhibited were curved both on the flat and on the edge, and are in pairs, right and left. Either blade may, however, be used on either tonsil, especially if the operator is ambidextrous, by making the section upward or downward according to the curve. But in most cases it is easiest and safest to make the section upward to avoid cutting the base of the tongue; the flat curve of the blade will prevent the danger to the posterior pillar. The firm hold by the double hook enables the operator to lift the mass of tonsil tissue out of its bed from between the pil-

lars to any extent, even when it is partially overlapped by large pillars. In a total of something over four thousand tonsil excisions, Dr. Hobbs finds himself choosing these instruments now in at least 75 per cent. of his operations.

Dr. McFadden Gaston, of Atlanta, read a paper entitled:

EXTIRPATION OF THE RECTUM FOR CARCINOMA.

The patient, a white man, aged 62 years, was referred to Dr Gaston by Dr. J. I. Darby, of Columbia, Ala. There was no family history of malignant disease, but his appearance led to the conclusion that there might be a cancerous cachexia. Having had occasion to report two cases of papilloma of the rectum with carcinomatous degeneration, which terminated fatally without operation, he recently advised in a similar case extirpation of the entire mass. This was done without serious consequences on May 30, 1891, and promised a good result, but there was a redevelopment of the induration above with a fatal result.

The patient referred to was received at the Providence Infirmary with rectal trouble. Upon digital examination and exploration with the speculum, there was found to exist an induration and thickening of the submucous tissues, extending from an inch within the anus up to the recto-colic junction. The mucous membrane presented a dark, congested appearance, attended with some oozing of blood. There was a marked constriction of the upper portion of the indurated structure, but admitting of the passage of the point of the index finger by forcible upward pressure, giving the impression that the structure above was not involved in the disease. It was therefore determined, after consultation with several colleagues, that they had a case of carcinoma of the rectum of a circumscribed nature, which warranted an operation, and extirpation was performed July 8, 1891. The patient did well up to the 16th of July, when a marked change came about rather unexpectedly during the day, ending in collapse. At 11 P.M. he died of septicæmia.

Dr. J. W. Hallum, of Carrollton, contributed a paper on

THE TREATMENT OF HÆMORRHOIDS BY CARBOLIC ACID INJECTIONS.

In most of the cases that apply for relief it is unnecessary to delay, but the speaker proceeds at once to make a radical cure of the pile tumor. He does this by mixing together pure carbolic acid one part, and pure glycerine two parts, and enough morphine and tannic acid that 10 drops of mixture will contain ¼ gr. each. Let this be well shaken and thoroughly dissolved before using it.

The position that he has found to be probably the best is the one which a toad assumes when in a sitting posture. In this position the patient will almost invariably pass out the tumors by an effort at straining down. There is more or less burning for a few minutes, consequent from the injection, after which, in the course of five or six hours, the tumor begins to throb and ache from the swelling, and also the death of the pile itself.

Adjourned.

THIRD DAY—AFTERNOON SESSION.

The Association reassembled at 2:30 P.M., and after transacting some miscellaneous business, proceeded to the installation of officers. The following were elected:

President—Dr. A. A. Smith, Hawkinsville.

First Vice-President—Dr. Geo. J. Grimes, Columbus.

Second Vice-President—Dr. R. H. Taylor, Griffen.

Treasurer—Dr. C. E. Goodrich, Augusta.

Secretary—Dr. D. H. Howell, Atlanta.

On motion, the Association adjourned to meet in Americus, the third Wednesday in April, 1893.

THE Third International Congress of Criminal Anthropology will be held at Brussels, from August 7 to 14.

NEW YORK ACADEMY OF MEDICINE.

Section on Orthæpedic Surgery.

Stated Meeting, April 15, 1892.

HENRY LING TAYLOR, M.D., CHAIRMAN.

Dr. L. A. Sayre said that in his paper at the last meeting, he had referred to a case of hip disease which he had seen in consultation with Sir James Paget and Mr. Adams, of London, which it was generally considered could not recover without ankylosis and deformity. He was fortunate in having the opportunity of presenting this patient at this meeting. This man could place the feet on a table, could squat down, and, in fact, could perform every motion so well that it was difficult to see which had been the diseased hip.

THE EFFECT OF PERSISTENT MOTION.

Dr. John Ridlon exhibited a girl, nine years old, who had come to him at the Vanderbilt Clinic on April 23, 1891. Eight months previously she had received an injury to the right elbow, which was diagnosticated as a "fracture of the coronoid process of the ulna, and a dislocation backwards of the radius and ulna." She was attended by a well qualified practitioner of this city. The arm was immobilized for about four weeks, and then passive motion was commenced. Twice daily the forearm was flexed and extended on the arm to the limits of tolerance, and twice weekly, under an anæsthetic, the forearm was flexed and extended to the normal limits of motion. This treatment was faithfully continued for seven months, during which time, the range of motion gradually became more restricted, the joint more and more swollen, and more painful under the attempts at motion. Examination showed the forearm flexed on the arm to a right-angle, much swelling about the joint, enlargement of the superficial veins, and atrophy of the muscles of the arm and forearm. The swelling had a pulpy feeling, but no point of fluctuation could be detected. The bony points were so obscured that the exact nature of the injury could not be determined. There was no motion at the joint, and attempts at motion caused pain, and developed intense muscular spasm.

The treatment adopted was as follows: The head was bent down, and the wrist put in a "halter" made out of a roller bandage knotted around the wrist and neck. The slack of this was taken up as the rigidity yielded, and at the end of two weeks the joint could be completely flexed. In this position the joint was held without motion being once permitted or tested for eleven months. The pain disappeared, the swelling gradually subsided, and when the halter was removed there was found to be free, painless motion from a right-angle to normal flexion. Since then, there has been no treatment, and the range of motion in the direction of extension is gradually increasing.

Dr. W. R. Townsend said that this girl had been brought to the Hospital for Ruptured and Crippled about two years ago by her attending physician, who said that passive motion had been made under ether about three times a week since the fracture, to prevent ankylosis. Dr. W. T. Bull, who saw the case in consultation, agreed with the speaker in advising rest. The attending physician dissented from this view, but finally said he was willing to give the joint rest for a limited time, if he were relieved from all responsibility as to the result. The case was accordingly treated in the hospital with a plaster of Paris splint for about four weeks, when the mother objected to a continuance of this treatment. Dr. Bull again saw the case in consultation, and the opinion was then expressed that there was a beginning osteitis, and that if motion were kept up the child would undoubtedly have a stiff elbow. The patient and doctor dissented again, and wished passive motion made, so she was then discharged from the hospital out-patient department.

Dr. S. Ketch said that if the arm were moved beyond a certain point, especially in rotation, there is reflex spasm, and he thought there was still some active disease in the elbow joint. He asked if the halter allowed of pronation and supination.

Dr. Ridlon replied that the halter did not prevent these motions, but so far as his experience with it had gone, when properly applied under the clothes, the children, as a matter of fact, do not attempt to make these motions.

Dr. Ridlon also presented a case for diagnosis.

A man, 34 years old, came to him at the Vanderbilt Clinic on February 15, 1892. For two weeks, he had been stooping and stiff in the lumbar spine, with pain in the back and lower abdomen, and, at times, down the front of the thighs. Seven years ago he had a similar attack, at which time, after suffering for four weeks, he went to the dispensary of an orthopædic institution in this city, where the diagnosis was made of Pott's disease, and a Taylor spinal brace applied. He remained in bed for two months wearing the brace, but without any relief. He was then admitted to the St. Francis Hospital, where a blister was applied, and the pain immediately relieved. At the end of two weeks he was quite well again, and remained so up to the present attack. Examination revealed the whole lumbar spine curved backward and rigid; there was psoas contraction on the left side, but none on the right; and there was a doubtful fullness in the left iliac fossa. He was treated with anti-rheumatic remedies, and soon showed improvement, and in the course of a few weeks, felt entirely well. There is now no spinal curvature, no rigidity, no psoas contraction, and the patient is quite well, except that at times, after long sitting over a bench at his work, he feels the back somewhat stiff.

AN INEXPENSIVE HEAD SUPPORT.

Dr. Royal Whitman exhibited a support which he had devised for a child with mid-dorsal disease, in whom there was a tendency for the shoulders and the whole body to droop forward. The support consisted of a curved piece of steel attached to the back of the brace used in connection with lateral pads for holding the shoulders back, a form of apparatus which he had already exhibited and described.

Dr. V. P. Gibney then exhibited a series of operative cases.

ANKYLOSIS OF THE HIP AFTER TYPHOID FEVER.

The first case was that of a boy, 11 years of age, whose trouble dated back to an attack of typhoid fever in November, 1889. He was admitted to the hospital July 14, 1890, and at that time his general condition was fair; there was a long and deep cicatrix over the right hip. There was about half the normal motion. The left hip was held flexed at 135°, and there was much spasm. His mother died of phthisis, but the other members of the family were healthy. One month later the right limb could be extended to 180°, and the left limb to 170°, with little or no motion at the knee. He was then allowed out of bed, wearing a brace on the left side and a high shoe on the right. On November 19 there was some tenderness around the joint, but none in the joint. The brace was left off and he was given cod liver oil and allowed to walk around. On January 16, 1891, the right thigh was flexed on the abdomen. The adhesions were broken up by manual force, and in doing so, a "snap" occurred. The tensor vaginæ femoris and the fascia were divided subcutaneously, and the deformity yielded visibly. The limb was then hyper-extended, abducted, and rotated outward, and put up in plaster of Paris. On February 11, as the thigh was flexing, the limb was placed on an inclined plane with a weight and pulley, and this treatment was continued for nearly one month. The left hip was then extended at an angle of 158°, with practically no motion, and the right hip at 170°. On June 13 the right thigh could be completely extended; the left, to 140°. On October 23, under ether, it was found that the hip could not be fully extended, so the tense bands attached to the anterior superior spine were divided, and then the limb almost completely extended, and put up in plaster of Paris. On January 18, 1892, he was etherized, and a femoral osteotomy performed, and the limb hyper-extended and put up in plaster, and by February 17 there was firm union, the limb was extended at an angle of 175° and with 5° of motion. The ordinary hip splint was then applied. On March 5 the limbs were parallel, union was very firm, and his general health was good. On April 6 he was allowed to walk about without any support.

EXCISION OF ONE HIP IN A CASE OF DOUBLE HIP DISEASE WHERE SACRO-ILIAC DISEASE WAS FIRST DIAGNOSTICATED.

The next case, a boy, nine years old at the time of his admission on January 22, 1890, had a good family history, and his hip disease was attributed to a fall in September, 1889. Before coming to the hospital, he had been treated in a dispensary for sacro-iliac disease. At the time of admission, the thigh could be flexed to 60°, and extended to 180°; all the movements were restricted by pain. On March 4, 1890, both thighs and knees were flexed, and there was much reflex spasm about the right hip, and somewhat also about the left. The hips and knees were extended, and the limbs made parallel, and they were then put up in plaster of Paris spica. About this time the temperature began to rise to 102° every night, and to fall in the morning to 98.8°, and there was marked tenderness in the right hip. On March 29, there was fullness and deep fluctuation in the upper fourth of the thigh, and a needle withdrew some pus and blood. A hip splint was applied, and the child put to bed. On April 8, a double spica with traction was applied. On September 3, about seven ounces of pus were removed from the right thigh by aspiration, and on the 30th of the same month, the child was etherized, an old sinus curetted and enlarged, and a counter-opening made. The head and neck of the femur and the acetabulum were found to be diseased. The temperature remained high until October 15, 1890, when a large abscess was found over the trochanter major, which did not communicate with the sinus. On January 28, 1891, after poulticing, the abscess opened spontaneously. On February 10, the child was etherized, and excision performed. The head and neck were curetted, a counter opening made, and a double spica applied. The dressings were changed every third or fourth day, peroxide of hydrogen solution being used to wash out the cavity. By July 2, the excision wound was almost completely closed, there was some infiltration about the joint, but very little spasm and tenderness, and the limb could be extended to 180°, and flexed to 160°. By September 16, flexion had been increased about 10° in the right limb, and the left limb could be extended to 180°, and flexed to 135°, motion being slightly restricted by spasm. On December 16, a jointed splint was applied, upon which he moved around with comfort. On February 27, 1892, it is noted that there is a fair amount of motion at the right hip without pain, the other limb remaining unchanged since last note.

EXCISION OF HIP WITH FAIR RESULT, SCARCELY FINAL.

The next case was a girl who was eleven years of age at the time of her admission on June 6, 1889, with hip disease of six months duration. Her mother had died the previous year of some pulmonary affection. The child was poorly nourished, and could hardly stand; the right limb could be flexed to 135°, and abducted one-fourth of an arc, and the left correspondingly abducted; there was marked tenderness and spasm. On July 31, 1889, a small quantity of pus was removed by aspiration, and the hip splint was applied. On

December 9, of the same year, the limb was much abducted, and there was some infiltration in the upper part of the thigh. On May 13, 1890, the hip was very acutely inflamed, and the child had night cries, and tonics and stimulants were ordered. On December 2, there was very little discharge and the wounds looked healthy. On February 12, four sinuses were discharging freely, and there was considerable burrowing of the pus. On April 24, 1891, excision was performed, involving three of the sinuses. The capsule was practically gone, and the head of the bone carious, and there was a shell of exfoliated bone. After dividing the bone at the neck, it was found that the disease had extended into the shaft, so $1\frac{1}{2}$ inches were removed, and the parts thoroughly curetted, packed and drained. On July 18, the child was etherized, and some sinuses again scraped out. On July 27, there was 10° of motion, and the limb was extended to 170°. By August 20, there was scarcely any discharge, no tenderness, the limb could be extended to 180°, and there was 20° of motion. On February 18, 1892, it was noted that the angle of greatest flexion was 100°, and greatest extension, 180°; there was no spasm or pain on manipulation. At present, she is wearing a caliper splint, the right thigh can be flexed nearly to 90°, abduction is quite good, and extension is nearly perfect.

CASE FOR DIAGNOSIS, PROBABLY SUBACUTE RHEUMATISM.

A little boy was next exhibited, who had been sent to the outpatient department of the hospital about three weeks before for a diagnosis. For three months, he had complained of pain and stiffness in the hip and knees. He had the walk of hip disease with slight spasm, and slight limitation of motion, and it was a question whether there was really incipient hip disease, or whether there was a neurotic element in the case. He was given the salicylates internally. Soon after, he began to complain of pain in the knees, and ankle, while the hips had improved slightly. He had been in the hospital only two days, but in this time, there had been some improvement. There was evidently pain, and undoubtedly also an inflammatory process, as on several occasions his temperature reached 101° or 102°.

ATONIC KNOCK KNEE; FAILURE TO RELIEVE BY APPARATUS; SUPRA-CONDYLOID OSTEOTOMY; SUBSEQUENT SYNOVITIS; LATER STILL, APPARATUS; RESULT, VERY UNSATISFACTORY.

The fifth case was a girl who first came to the dispensary on January 1, 1888, when fourteen years old. She then had right knock knee, which was treated with a Thomas knock-knee splint. The brace was worn for about one year, and then was removed, and the shoe built up on the inner side. On August 5, the knee had again become relaxed, and plaster of Paris was applied. On October 21, there was a synovitis of the right knee, and the girl was admitted to the hospital shortly afterward. At this time, both knee joints were relaxed, and could be hyperextended, there was flexion to about 120°. The knee joint was distended with fluid, and there was some joint tenderness. On November 14, 1889, about twenty ounces of clear fluid were drawn from the joint, which was then irrigated with carbolic acid solution, 1:40, and the limb put up in plaster of Paris. On January 30, 1890, there was again some effusion into the joint, and she walked with some stiffness. There was flexion to 140°. On February 27, she was discharged unimproved, and on March 31, she was re-admitted. At this time there was marked lateral improvement, the tibia could be abducted so as to make an angle of 153° with the femur, and adducted to 175°; the knee could be flexed to 110°. There was also much pain in the muscles about the right hip and thigh and considerable tenderness in the iliac fossa with prominence just in front of the great trochanter. On September 18, 1890, the pain had disappeared from the hip and she was wearing a Knight posterior knee brace. She was discharged from the hospital then, but again admitted on May 27, 1891. Finally, a supra-condyloid osteotomy was performed from the outer side, and the knee over-corrected, and put up in plaster for a while. At present she is wearing a splint without motion at the knee, and although she walks well, there seems to be no prospect of improvement.

Dr. V. P. Gibney read a paper entitled:

SOME OF THE INDICATIONS FOR OPERATIVE INTERFERENCE IN ORTHOPEDIC SURGERY.

The paper dealt first with the range of orthopedic surgery as held by the majority of surgeons practicing this specialty throughout the world. It commented on the brilliant results obtained by general surgeons in cases that were strictly orthopedic. It emphasized the importance of supplementing operative procedures with mechanical appliances.

It was suggested that orthopedic surgery might be advanced if one devoted as much time to the clinical history and the pathology of the disease which produces deformity, as one does to the devising of splints and modifications of splints. The importance of devising splints to suit individual cases and to meet certain conditions, was regarded as an important part of orthopedic surgery.

It was stated that the orthopedic surgeon seldom has an opportunity of putting a splint on a case in the very first stage of the disease; that many of the cases of what are called early hip disease were not early cases, but that deformity had already arisen when they came to mechanical treatment. The same was true of Pott's disease of the spine.

Some of the indications for operative interference were mentioned, as correction of deformity in these early hip cases by manual force under ether, by division of tendons and muscles, if the correction were difficult, and in the advanced cases, where the disease was fully arrested, osteotomy below the trochanter minor was suggested as a valuable addition to our therapeutics.

With regard to abscesses, it was urged as good orthopedic surgery to make incision, if four or five aspirations failed to relieve. It was further suggested that old sinuses and pockets of pus should be treated by operative interference.

Operative interference in spinal disease was not recommended except where a severe trauma had fractured the lamina, and where pressure had resulted. In these cases, laminectomy was advised, but it was suggested that in many instances of this kind, the ordinary mechanical treatment proved of valuable service.

In disease of the knee, partial arthrectomy was advised in preference to complete arthrectomy or to excision, especially in children. In the internal derangements of the knee, operative interference was advised rather than the prolonged use of apparatus and fixation splints. In synovial disease, pure and simple, an occasional aspiration of the joint, with strapping, was regarded as good orthopedic surgery.

(To be concluded.)

A CHEAP METHOD OF ADMINISTERING FAT.—Dr. Mershinski, by boiling milk and lard together for a considerable time, prepares a liquid which contains a large percentage of fat, one quart containing from four to five ounces. He gives a pint before rising and another at eleven o'clock. "Breakfast," at one o'clock, consists of carbohydrates; dinner at five, of nitrogenous matter. Experiments prove that the diet is generally well digested, and the patient increases in weight. Dr. Mershinski considers this preparation very suitable for hospital and union practice in cases of malnutrition not connected with disease of the stomach, liver, intestines, or pancreas.—*London Lancet.*

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SATURDAY, MAY 21, 1892.

REGISTER BY MAIL!

To the Members of the American Medical Association:—The committee on registration desires to have the coming Detroit meeting remembered as one of uninterrupted pleasure.

It will be no pleasure to you to stand in a long line waiting to be registered just at the time when you will want to be engaged in the work or pleasures of the meeting. You can avoid all that by *registering by mail.*

You will have the proper blanks sent you in a few days. When you receive them fill them out, enclose your fee and credentials and then, when you reach Detroit, by applying at the Association post-office you will receive AT ONCE your receipt and membership card. Don't forget to register by mail.

DAVID INGLIS,
Chairman Registration Com.

NON-PUERPERAL PHLEGMASIA DOLENS. TROUSSEAU'S SUGGESTION.

The *New York Journal of Gynecology and Obstetrics*, recently contained an abstract of a discussion, before the Academy of Medicine Obstetrical Section, on the subject of "milk-leg," as it is called, or "phlegmasia alba dolens," as it was formerly named. The point here to be considered is the fact that there are phlegmasiæ, in some respects closely resembling milk-leg, outside of the puerperal pale. DR. W. GILL WYLIE, in the discussion above mentioned, is reported to have said that he had seen at least two cases of so-called milk-leg that were the outcome of gynecological operations. In one of these, the symptoms were almost typical of those of phlegmasia alba dolens. In that case the surgeon had curretted the uterus for a large fibroid, the cavity of the organ having a measurement of eight or ten inches. The other case followed a laparotomy. A third case, the origin of which was not clear, had interested him and had been the subject of an exploratory operation for a condition somewhat vaguely described as "cellulitis." The leg was greatly swollen and the patient had high temperature and occasional chills. The laparotomy did not yield much information beyond bringing to light a small amount of grumous material along the line of Poupart's ligament, which material was removed. The patient ultimately recovered, but whether because of the operation or in spite of it, he was unwilling to declare. In his opinion these cases have a septic rather than a merely obstructive origin. DR. GRANDIN coincided in this latter opinion and found his proof in the fact that puerperal form of the disease is more rare in these days, and in modern practice, by reason of the greater regard paid to antiseptic regimen; sepsis had to do with the only case that had come to him in his own practice.

DR. RALPH WALDO had seen a case of venous trouble following an attack of pneumonia, which was marked by a weakened state of the heart as a probable cause, for as has been stated by others a weak cardiac action will favor the formation of thrombus. DR. BUCKMASTER, editor of the journal above named, had seen two cases of phlegmasia alba dolens, one of which might properly be classed as non-puerperal, although complicating a puerperal convalescence. In that case there had been a laceration of the cervix uteri. As a prophylactic measure vaginal injections of creolin had been ordered, but the nurse accidentally gave an intra-uterine charge. Twenty-four hours later an inflammatory condition of one leg began, which was not anticipated to occur and which very possibly might not have occurred had it not been for this extraneous and accidental source of irritation.

It is well, at this point, to bear in mind the positiveness of TROUSSEAU in the matter of spontaneous coagulation of the blood in cancerous subjects. He has been followed now and again by other observers who have noted, especially in regard to abdominal cancer, a tendency to coagulation within the veins of the lower extremities, on one side or on both. Oftentimes the life-signs of cancer so located are obscure and unnoticed. But the observations of TROUSSEAU are useful as given in his chapter on phlegmasia alba dolens. He says: "The semeiotic value of phlegmasia is so great in the cachexia of cancer that I regard this condition as a sign of the cancerous diathesis as certain as sanguinolent effusion within the serous cavities." This suggestion implies that thrombosis may be a mediate result of almost any constitutional disease that has, among its immediate entailments, a weakened heart. It implies, further, that another step of progress may be possible in the understanding of "cardiac syncope" and "heart failure," the catch-

alls, pathologically speaking, of coroners and indolent diagnosticians. Many mysterious cases of death have undoubtedly for their underlying cause sepsis or cancer, deeply located, having intra-vascular lesions, and only to be made plain by a venous autopsical examination, at parts rendered suspicious by congestion and œdema. A case of cancer of the pancreas, illustrative of the relations above described has appeared in the *British Medical Journal*, December 19, with notes by DR. LEONARD CANE of Peterborough. No organ, other than the pancreas, was found to be the seat of cancer, which was of the scirrhus variety.

POST-DIARRHŒAL ACUTE ATAXIA.

DR. HENRY J. BERKLEY, in the *Johns Hopkins Hospital Bulletin*, February, gives an instructive case of pseudo-tabes following an attack of diarrhœa. This is probably the first recorded case of its kind, and affords room for possible differences of opinion as to etiology; the argument of Dr. BERKLEY, however, is well sustained, and worthy of being weighed by his co-laborers.

The term "acute ataxia" has been employed by PROFESSOR LEYDEN, of Berlin, in *Zeitschrift für klinische Medicin*, 1891, to describe certain cases of suddenly beginning ataxia of movement; first, the cerebral variety, characterized by disturbances of speech and psychical symptoms in addition to the ataxic phenomena; and second, the sensible, marked by the presence of various anæsthesias and paræsthesias, without psychical complication. With both these types there may be paralyses, or they may be absent in both. Following certain of the infectious diseases, notably typhus fever and diphtheria, there may occur a form of ataxia, indistinguishable clinically from the ordinary ataxic conditions in tabes dorsalis, but readily separable in the light of the history and progress of the attack. There is the same gait, the steppage, the same pounding of the feet, the incoördination and local anæsthesias; the major symptoms are identical in both affections. These cases of infective history either get well in the course of a few weeks, or enter upon a chronic stage; death seldom takes place in their early evolution.

The patient, in this case, was a stoutly built female, aged 58, with a good health record until the summer of four years ago. An attack of intestinal catarrh at that time occurred, not remedied during three months of home treatment; it was not sufficiently severe to incapacitate the patient for domestic work. A sudden access of ataxic symptoms made it necessary to seek hospital treatment. In the hospital, the diarrhœa was checked and physical health improved, but during convalescence the sight of the right eye was lost, and that of the left became very imperfect. The ophthalmoscope showed white atrophy of optic nerve in both eyes, greater in the right than in the left. After the acute stage of the affection, impairment of vision did not progress, but showed a slight improvement in the left eye. Aside from the optic neuritis, the nervous history of this case may be divided into three periods; first the acute, marked by extreme muscular incoördination of the inferior extremities and intense vertigo; then a second stage, showing a recession of the acute ataxic symptoms, replaced by others indicative of irritation of the spinal reflex centers; lastly, a third stage, with ataxic symptoms in the upper as well as in the lower limbs, suggestive of an extension upwards of the degeneration in the posterior columns of the spinal cord.

The hypothesis of the writer is that this long chain of symptoms had its beginning in the somewhat unmanageable diarrhœal attack. Thence an auto-infection took place from some of the microörganisms inhabiting the intestinal canal and finding their way into the system through some lesion of the intestinal mucosa, and thereby irritating both the central and peripheral nervous systems. The optic neuritis can in this way be explained by the lodgment of pathogenic material at the chiasma of the optic nerves. This seems to be just the fit point for the deposit and growth of pathogenic organisms, and a room for the action of their toxical products. "This place even excels the region of the fissure of Sylvius, and the protuberance in the loose and folded character of the meninges, and the number of blood-vessels in its meshes, seem to afford great facilities for an exudation and stasis of the blood." The nidus afforded at the optic chiasm could facilitate the growth of whatever pathogenic germ might be brought there, and it or its irritative products might act with greater intensity to the right or to the left, giving such unequal inflammatory results as were found in the case above outlined. The optic neuritis, after measles and some other infectious diseases, may find its explanation in a neuritis caused by the abundance of poisonous germ products, as in other forms of infectious neuritis.

THE SO-CALLED KEELEY CURE.

In previous issues we have directed attention to the fraudulent claims of this much advertised and heralded business. The following clipping is an apt illustration of these pretensions, and which is entirely untrue:

> The Keeley treatment for the liquor, opium and tobacco habits has received the endorsement of the United States Government, and will now be used in all of their State and military homes for disabled volunteer soldiers and sailors. This is strong proof of the superiority of the treatment. The patronage of the Keeley institutes has doubled, and in many cases quadrupled, in the past six months.—*Galena* (Ill.) *Gazette*, May 12, 1892.

The daily press announces this week that DR. KEELEY occupied the pulpit of DR. TALMAGE last Sabbath, where he announced that but three persons knew the

constituents of his cure, and that the secret would never be divulged. This is certainly a strange and new gospel to be proclaimed from a Presbyterian pulpit. The claims of the orator for his secret nostrum, with his avaricious greed for gold, should be paralleled with the every day work of more than five hundred physicians who give freely, without money and without price, their invaluable services to the poor people who fill to overflowing the hospitals and charitable institutions of New York and Brooklyn.

This parallel would be incomplete were we to withhold a reference to the MESSIAH, supposed to be preached by the aforesaid DR. TALMAGE. Did that beloved physician withhold from the world His professional skill and keep it a secret? Did His greed for shekels tally with that of this man KEELEY? Did the MESSIAH and His disciples withhold from the world a knowledge of a mode of salvation for sinful men?

And yet this prince of nineteenth century charlatans is allowed to occupy a prominent church pulpit for the nefarious purpose of advertising himself and his wares.

It is reasonable to infer that the preacher stood in with the quack for revenue purposes, in order to lay up for himself some treasures of a very earthy sort.

Those who were using the temple for trade and sordid gain were driven from it by the MASTER. The cure He used on that occasion was a liberal application of a whip of cords. The ratio of cures recorded was one hundred per cent.

NEW YORK CITY BOARD OF HEALTH.

An interview in the New York *Tribune* with DR. E. G. JANEWAY, formerly one of the Commissioners of Health, reports him as asserting that the City Board of Health is being corrupted into a purely partisan concern. He states that good and experienced men have been removed at a day's notice, in a summary way that he would not employ in the case of a house-servant. For the first time in many years, he says, political considerations are allowed to outweigh all others, and he assails the management as a menace to the public health. He predicts that the machinery of the Board will be used to satisfy ward politicians, and not for the removal of danger to health, and he condemns the recent changes as showing a policy of action that is "unwise, injudicious and unsafe."

In order to "back up" his opinion in this regard, and enable him to speak out freely his convictions about it, he resigned his positions as Consulting Physician to the Board, Attending Physician at Bellevue Hospital, and his chair of the Theory and Practice of Medicine at the Bellevue Hospital Medical College, all of which positions were more or less interlinked. The people who brought about these resignations, he says, would have the public believe that he had been constrained to give up his appointments by reason of "his large private practice and his increasing personal obligations," but he refuses to look at it in that light. He takes that course as a protest against what he regards as a detestable and dangerous measure leveled against worthy and able medical men.

It is said that it will not be difficult to fill the vacancies so made. DRS. A. A. SMITH and H. M. BIGGS are named as the probable successors of DR. JANEWAY, who was himself the successor of the great FLINT.

DR. JANEWAY has the name of being a conscientious and solid kind of man, who will be benefited rather than injured by the distasteful experiences he has had recently to undergo. *Floreat justitia.*

In the same paper, a little paragraph of six or seven lines gives a hint as to the kind of timber that holds up our city's government. The Woman's Hospital of New York found it necessary to get the permission of the Board of Aldermen to sell their present real estate to help pay for its proposed new hospital. The requisite resolution was adopted by the Board, "on condition that the hospital authorities, in their new location, *set aside fifty free beds to be at the disposal of the Aldermen.*" The present capacity of the hospital is 130 beds. Those Aldermen have probably as much right to demand fifty islands in the Pacific Ocean, as to expect to get those aforesaid free beds.

THE AMERICAN MEDICAL ASSOCIATION.

In the make-up of the program for the ensuing meeting, special pains have been taken to give the greatest possible amount of time to the Sections for their work. This is as it should be. Seven distinct sessions have been provided for, to enable the Section officers to get through with their work without a seeming show of undue haste, or a reading of papers by title and then passing them over.

Further changes will no doubt be suggested from time to time as necessary to meet the requirements of future meetings. Progress means change, to stand still is stagnation.

That these changes may be made with the least possible friction and to favor the scientific purposes of the Association, a well matured plan was proposed in one of the Sections last year that is deserving of thoughtful consideration.

It was, that there be created an executive committee of each Section, consisting of three members, each serving for three years, the first three serving respectively one, two and three years, the yearly vacancy being filled by the retiring chairman of the Section. It was proposed that these several Section committees should together constitute a general business or executive committee of the Association.

To this committee could be referred all such matters as the selection of place and time of meeting,

the nomination and selection of the general officers of the Association. This committee could also hear and act upon most other business affairs of the Association.

This would place a very considerable amount of onorous work upon the members of the Committee, but its compensation would be found in the appreciation and recognition of its time saving labor to them, by the great body of members, a large proportion of whom are, at every meeting, new men and not familiar with the necessities and work of the organization.

The proposed plan would place the business of the Association in the hands of the older and more experienced members, and at the same time the annual rotation of Section chairmen would continuously eliminate the old and introduce the warmth and enthusiasm of new blood. Stagnation and turmoil would not likely occur under such conditions. The prosperity of the Sections and of the Association being identical, this committee of experienced members could originate and formulate any measures they may deem essential for the prosperity of the Association, and thus keep it in all respects abreast of the times and of its demands.

THE PHYSICIAN IN PUBLIC AFFAIRS.

The *Post Graduate*, of New York, says:

Much is due to Dr. R. P. Bush, Speaker of the Assembly, a graduate of the University of Buffalo, for his steadfast and intelligent opposition to the nullification of this good law. We also owe him much as a profession for his opposition to the various schemes for cheapening medical education, of which the proposed Bayard Medical College was the latest manifestation. He was always on the alert for these schemes, and by his knowledge of what they really meant, and his sagacity and political position, he easily defeated them.

We wish it were possible for every State Legislature to have in it a man of the type and character of Dr. Bush, of New York. The common desire so generally shown by the profession in its action, as manifested in numerous medical societies petitioning Congress to pass a bill creating a Secretary of Public Health, indicates an awakening interest in the special relations which exist between the practitioners of medicine and the general public.

No one thing so nearly concerns the immediate welfare of any and all communities as that of the personal health of the people. With perfect mental and physical health the limits of possible accomplishments cannot be defined, and per contra, the demon of disease has swept whole nations from the face of the earth.

For these reasons alone the physician should be known as a man interested in the public weal. And in no one way can the people so readily realize this as through a knowledge that there is a Cabinet officer of Public Health who is the Nation's constituted advisor of the President on all subjects pertaining to the physical and mental well being of all the people.

CLASSIFICATION OF MORBID PROCESSES.

Naturalists have sometimes been criticised for the great amount of time which they put on classification of specimens. It does sometimes seem that the efforts of some workers in paleontology, for instance, never rise above attempts to detect minute, and perhaps unimportant differences between specimens, for the purpose of naming new species, or new varieties. Such work is often open to the objection of Agassiz, that it is "too much descriptive and not enough comparative." But classification in its proper sphere is invaluable. But it should follow, not lead. When revised classification is based upon new discoveries of relations, it becomes an outline of the advance, and a faithful mirror of progress.

Probably the most elaborate attempt to classify diseases, was that made by DR. MASON GOOD, in his famous "Study of Medicine." His division of diseases into classes, orders, families, genera, species, etc., was unfortunately one not adapted to the subject in hand. Since his day many changes in classification have occurred. Dropsy, which was once considered a disease, has been relegated to the group of symptoms. It was found to be secondary to disease in certain organs. The relation of dropsy to these diseases was of a mechanical nature and its secondary character was in consequence quite readily discovered. The value of the knowledge of the secondary character of dropsy, will of course be readily admitted, although we still often administer remedies directed particularly against the symptoms.

Sudden death has been found to follow many pathological conditions so that the term apoplexy has gradually lost its original signification and come to mean only hæmorrhage into the brain. The attempt to broaden it into meaning hæmorrhage into other organs is to be deprecated, and the recent proposal to drop the term entirely has much to commend it.

Diarrhœa has long been known as a symptom of numerous pathological conditions, so that it is no longer possible to use the term correctly as the name of a disease. This much then may be said to have been accomplished,—the striking out of the category of diseases, of the names of symptoms which are mechanically secondary to definite disease of certain organs, and of the names of symptoms which are secondary to various morbid changes, or coördinate with them.

But the next step in advance in this direction is coming very slowly. This step is the recognition that many of the diseases now spoken of as inflammations of special organs, are in reality but symptoms of general processes. Such recognition can not by any means diminish the importance of these conditions as individual symptoms, cannot detract from the special attention which must be given them therapeutically, but by securing more comprehensive

views of individual cases, cannot fail to redound to improvement in treatment. Among such conditions, pleurisy may be mentioned. It occurs as a tubercular affection; it occurs as a complication of pneumonia; it is frequently a symptom of Bright's disease; it is one of the many features of influenza. Meningitis must be put in the same category. To say that a patient has meningitis is not enough. We must also know to what disease the meningeal condition is due. Is it due to tuberculosis, to Bright's disease, to influenza? Or is it due in the given case to some other specific general disease or diseases not as yet differentiated? Peritonitis, and broncho-pneumonia belong in the same category.

Convulsions in infancy are no longer considered a disease, but symptomatic of various disorders. Acute torticollis, so long attributed to cold, has been found to be an occasional symptom of malaria. Many of the cases of acute torticollis present evidences of general infection. The patients have elevation of temperature, and more or less depression, so-called general malaise, which can not be accounted for by the local conditions alone. The readiness with which such cases yield to the administration of antipyrin, which not only relieves the pain, but removes the muscular spasm, and all the general symptoms, is further evidence of the general character of the disorder.

All this goes to show, that we are approaching that ideal time when diseased conditions can be classified upon an etiological basis. But we have gone so far in this direction in some matters, that a compromise is necessary. When the determination of the etiology of a given affection is beyond the pale of the methods of research available clinically, the more exact scientific classification must wait. The practical classification, which means of course the nomenclature of disease, is one which should assist the practitioner, not only in his preliminary study, but in his actual work at the bedside. It therefore becomes necessary to restrict the classification upon an etiological basis, to the possibilities of utility to the practitioner.

EDITORIAL NOTES.

New York Eye and Ear Infirmary.—This institution has recently received a gift of $80,000 from the widow and children of the late Dr. Abram Du Bois, a pioneer specialist in eye diseases in New York City, and a generous giver to this institution during his lifetime. A memorial building, or pavilion, will be put up with this donation, to bear forever the name of Dr. Du Bois. This gift was not the result of bequest, but a genuine gift on the part of surviving members of the late doctor's family, freely given because of the fifty years of active interest in the Infirmary, its professional work and its government. The trustees expect to raise another equal sum, and thus provide for the construction of three pavilions, with a total bed accommodation of 150, besides private rooms. The Infirmary is now the second largest of the kind in the world, and last year treated about 21,000 cases of diseases of the eye, and 37,000 cases of other ailments. Nearly all the patients are treated free of charge. The new pavilions, when completed, will occupy 100 feet on Second avenue by about 150 feet on Thirteenth street, the old and well-remembered locality where hundreds of ophthalmologists have received instruction.

American Medical Temperance Association:—The annual meeting of this Association will be held on Tuesday, June 9, 1892, at 7:30 P.M., in the room assigned to the Section of Practical Medicine of the American Medical Association. An address will be delivered by the president on the Objects of the Association, and on the important physiological and therapeutic differences between the hydro-carbons constituting proximate elements of living vegetable and animal bodies, and those resulting from bacteriological or retrograde action. Also a paper on some dangers of the use of Alcohol in Acute Diseases, by G. N. Quimby, M.D., of Jersey City, N. J.; and a paper on Heart Failure from the Medicinal Use of Alcohol, illustrated by cases, by T. D. Crothers, M.D., Hartford, Conn. Discussions and miscellaneous business will follow. It is possible that a social Temperance Breakfast will be enjoyed on Friday morning at 8 o'clock.

The Red Cross Society.—Miss Clara Barton, president of the National Red Cross Society, has published a notification that her Society makes no appeals for charity, nor arranges concerts, or shows, nor endorses any efforts by others to raise funds. Voluntary offerings are received, acknowledged and applied. "The Red Cross," she says, "is an organization created by statutes and treaties. Its proper work is to mitigate the horrors of war, but it has officially extended its labors to fields of famine and pestilence, and disaster by flood and fire. Its functions are limited and well defined, and beyond these limits it cannot allow the use of its name and symbol."

Section on Dermatology and Syphilology.—In order that the meeting of this Section may take a practical turn and be of the greatest service possible, there has been in preceding years a "Question Box" in which could be placed questions for answer, and suggestions for discussion, in regard to any matters belonging to the Section.

These questions are assigned by the Chairman to different members present, as long in advance as possible, who answer them as may seem best. In this way matters of very considerable practical interest have at times been brought before the Section, and

valuable discussions have been afterwards called forth.

Inasmuch as some of these questions to be propounded may require some thought, it is desirable that they should be on hand as early as possible. The Chairman, therefore, requests that if any members of the Association have any questions in regard to Dermatology and Syphilology which they would like answered before the Section, or questions to propound for discussion, they would send the same to him at the earliest moment, that they may be incorporated with the work of the Section at the coming meeting at Detroit. L. Duncan Bulkley, M.D., 4 East 37th Street, New York.

A DINNER will be served to members of the Obstetric Section at the ensuing meeting of the American Medical Association. Members who wish their names to go into the pot for this occasion should not delay in sending their names to Dr. W. P. Manton, 83 LaFayette Avenue, Detroit, Mich.

WILL the author of the communication on "The Drink Habit" please send us his name?

PROGRAM OF THE SECTION OF NEUROLOGY AND MEDICAL JURISPRUDENCE.

TUESDAY, JUNE 7, 3 P.M.

1. Address of the Chairman: "Organization and Work of the Section of Neurology and Medical Jurisprudence," Harold N. Moyer, Chicago.
2. The Relation of Physical Violence to Hernial Protrusion through the Abdominal Walls, and its Medico-Legal Aspect," Thomas H. Manley, New York, N. Y.
3. "Consent in Medicine and Surgery," Clark Gapen, Omaha, Neb.
4. "Responsibility in Will-making," Henry A. Chaney, Detroit, Mich.
5. "Aphasia," Philip Zenner, Cincinnati, O.
6. "Hysterical Concomitants of Organic Nervous Disease," C. H. Hughes, St. Louis, Mo.
7. "Infantile Hemiplegia with Aphasia," Joseph Eichberg, Cincinnati, O.
8. "Retinal Excitation of Cortical Origin in Visual Hallucination," C. G. Chaddock, Traverse City, Mich.

WEDNESDAY, JUNE 8, 9:50 A.M.

1. "Electrical Execution," A. D. Rockwell, New York, N. Y.
2. "The Electrodes and their Application in Electrocution," Geo. E. Fell, Buffalo, N. Y.
3. "The Reflex Theory in Nervous Disease," L. Bremer, St. Louis, Mo.
4. "Reflex Genito-urinary Neuroses," G. Frank Lydston, Chicago, Ill.
5. "Three Phases of Para-myoclonus and the Use of Phonograph in a Case," Clark Gapen, Omaha, Neb.
6. "Nerve Regeneration after Suture," W. H. Howell, Ann Arbor, Mich.

WEDNESDAY, JUNE 8, 3 P.M.

1. "Syringomyelia: Our Present Knowledge of It," Landon Carter Gray, New York, N. Y.
2. "A Case of Syringomyelia," William C. Krauss, Buffalo, N. Y.
3. "Spinal Localization," Archibald Church, Chicago, Ill.
4. "Lateral Sclerosis, and its Treatment," W. H. Walling, Philadelphia, Pa.
5. "Heredity in Primary Degeneration of the Nervous System," Sanger Brown, Chicago, Ill.
6. "Surgical Interference with Cerebral Diseases of Childhood," Frank P. Norbury, Jacksonville, Ill.
7. "A Case of Tumor of the Pons in which Tapping of the Lateral Ventricles was done for the Relief of Intra-cranial Pressure," Theodore Diller, Pittsburgh, Pa.
8. "Neuralgia of the Abdominal Sympathetic," Harold N. Moyer, Chicago, Ill.

THURSDAY, JUNE 9, 9:30 A.M.

1. "The Relation of our Social Organization to Insanity," David Inglis, Detroit, Mich.
2. "Psychiatric Demography in Chicago," Jas. G. Kierman, Chicago, Ill.
3. "Insanity and Neuroses in Fiction," H. C. B. Alexander, Chicago, Ill.
4. "The Relation of the Paranoiæ to Society, and the Responsibility of the Civil Authorities for the Harm he Does," H. A. Tomlinson, St. Peter, Minn.
5. "A Case of Transitory Mania, with Peculiar Sequelæ," G. R. Trowbridge, Danville, Pa.

THURSDAY, JUNE 9, 3 P.M.

1. "The Law of Periodicity in Inebriety," T. D. Crothers, Hartford, Conn.
2. "Insanity Following the Keeley Treatment for Inebriety," Richard Dewey, Kankakee, Ill.
3. "Additional Evidences of the Somatic Origin of Inebriety," Eugene S. Talbot, Chicago, Ill.
4. "The Successful Management of the Alcohol Habit," C. H. Hughes, St. Louis, Mo.
5. "On Recent Judicial Evolution as to the Criminal Responsibility of Inebriates," Clark Bell, New York, N. Y.
6. "Delusions as to the Locality; a Frequent and Prominent Mental Symptom in Alcoholic Dementia," L. D. Mason, Boston, Mass.
7. "Some Recent Researches and Possible Investigations Regarding the Establishment of Personal Identity," Irving C. Rosse, Washington, D. C.
8. "Angina Pectoris," C. B. Mayberry, Danville, Pa.

FRIDAY, JUNE 10, 9:30 A.M.

1. "A Healthy Brain is Necessary to a Free Will," C. G. Comegys," Cincinnati, Ohio.
2. "Moral Insanity and Insane Morality," O. Everts, College Hill, Ohio.
3. "Feigned Insanity," F. W. Harmon, Carthage, Ohio.
4. "How Shall Responsibility be Measured in Criminal Cases," A. B. Richardson, Cincinnati, Ohio.
5. "Some Characteristics of the Human Mind when Placed at a Disadvantage; a Psychological Study," T. L. Wright, Bellefontaine, Ohio.

HAROLD N. MOYER, Chicago, Ill., *Chairman.*
G. R. TROWBRIDGE, Danville, Pa., *Secretary.*

SECTION ON ORAL AND DENTAL SURGERY.

The officers of the Section of Oral and Dental Surgery are Professor J. Taft, Cincinnati, Chairman; Eugene S. Talbot, Chicago, Secretary.

The following essayists and essays have been secured:

1. Dr. J. Taft.
2. Dr. H. Gradle, Chicago. "Experiences in Empyema of the Maxillary Sinus."
3. Dr. G. S. Junkerman, Cincinnati. "Oral Manifestations in Metallic Poisonings."
4. Dr. John L. Gish, Jackson, Mich. "Diseases of the Gums."
5. Dr. T. D. Crothers, Hartford, Conn. "On Diseases of the Teeth and Jaws in Inebriates."
6. Dr. J. Smith Dodge, New York. "The Local and General in Dental Pathology."
7. Dr. G. Lenox Curtis, New York. "Restoration of Sight following Operation for Necrosis of the Sphenoid Bone."
8. Dr. W. C. Barrett, Buffalo, N. Y. "The Condition of the Dentine in Pulpless Teeth."
9. Dr. M. H. Fletcher, Cincinnati. "A Universal Mento-Dental Splint, with Report of Case."
10. Dr. E. S. Talbot, Chicago. "Arrest of Development and Decalcification of the Enamel and Dentine."
11. Dr. John S. Marshall, Chicago.
12. Dr. G. W. Weld, New York. "The Treatment of Anæmia by a New Preparation of Iron, illustrated by the Hæmoglobinometer."

Others have signified their intention to write papers, and their subjects will be announced in the next number.

THE AMERICAN MEDICAL ASSOCIATION.

Next month the annual meeting of this great Society will be held in Detroit. We urge upon all the importance of attending. Of this Association it can be said more truly than of any other, that it is of our profession, for our profession, and by our profession. Its growth and prosperity have been continuous till now it stands first in authority and place in all America.

With all of its grand record it is more than ever needful that its friends should be solicitous. Success in the past does not of itself insure success in the future. Those who depend upon the *vis a tergo* will soon be minus momentum, and those who are satisfied by membership in, and casual attendance upon, the American Medical Association without individual effort, will contribute largely by neglect, to its failure.

What is needed now more than ever is work, downright, upright, honest, intelligent work. If we are not careful, the many special societies will sap the scientific strength of the Association in no small degree. They are well organized, are not unwieldy and hold out inducements to the best men in the several departments. They are all of them, worthy organizations and possibly one of their best results may be to make the workers in the American Medical Association more earnest and effective.

If the time should ever come when the best scientific work should be done mainly in special societies, it will be the fault of the present membership of the A. M. A. There is no grander medical organization on earth, and each Section is representative if rightly conducted. The loyalty of every reputable physician to his profession may well be called in question if the interest in the Medical Association is in any way permitted to lapse.

We do not greatly fear this, however, for already upon the horizon are the indications of renewed life and strength. The medico-political member has been branded. Combinations in and about the nominating committee are better understood. The itch for office is fast disappearing under proper local treatment. Even the most obtuse are beginning to understand that better is he who readeth a good paper than he who secureth only an office.

We would again urge upon all who can, to go to Detroit and join hands with those who are endeavoring to increase the usefulness of the different Sections. The very foundation of the Association is the scientific work done in these departments, and this work must not be hampered either by indifference or by barter and sale of "the push and the pull" in the rush for place.

We would like to see the rule adopted and enforced that no man should hold an office either in a Section or in the general Association, until he has shown some personal interest in the scientific work of the Association. An office in a medical society should be desired because of the opportunity it gives for serving the best interests of the society, and not because of personal advancement.

Membership in the American Medical Association is in itself a high honor. Having attained that, let each one endeavor to make that membership more valuable, and to do that, he must do all he can to help along the legitimate work of the Association.

We understand that the physicians of Detroit, under the leadership of Dr. Walker, the Chairman of the Committee of Arrangements, with the aid of the State Society, are making preparations for a grand meeting. They must not be disappointed.—*Clinique, May, 1892.*

DOMESTIC CORRESPONDENCE.

"The Leprosy Question."

To the Editor of the JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION:

In your issue of May 14, Dr. D. C. Newman, referring to my paper on "The Leprosy Question," states that had I followed up Dr. Arning's researches I "would have learned that Dr. Arning made many cultures of the germ as early as 1884. So this is anything but a new discovery."

The reference to be drawn from this statement is that it is a well-known fact, and has been since 1884, that the germ of leprosy is susceptible to cultivation.

That Dr. Arning has attempted to cultivate the bacillus lepræ I am well aware, and I am also cognizant of the fact that others have claimed to have done so. But these claims have not been accepted by the scientific world as final, for their cultures have not been proven to be *pure cultures*.

If I am ignorant of Arning's work and its results, I am surely in good company, for on April 30, 1890, Professor Virchow (*La Revue Médico-Pharmaceutique*), in formulating certain conclusions regarding leprosy, took occasion to state that "attempts to cultivate the bacillus outside the human body have so far been attended with negative results. Animal inoculations furnish no positive data."

But the foregoing reference is unnecessary, as Dr. Arning speaks for himself in a letter to the secretary of the Leprosy Investigation Committee (No. 2, p. 117): "I feel positively sure that before long, somebody or other working in this direction will succeed in raising pure cultures of the bacillus lepræ, and in studying its biology and chemical relations. There is no difficulty whatever in growing it profusely by simply letting pieces of leprous tissue macerate and decay in ordinary water at ordinary temperature, giving but sufficient time (several months); but the resulting growths are not pure cultures in strict sense."

We see from this quotation that while Dr. Arning states that he has been growing leprosy bacilli in an imperfect way, he frankly acknowledges that "*the resulting growths are not pure cultures in strict sense.*"

It goes without saying that in speaking of the discovery of the British Committee, I meant the discovery of a way to make *pure* cultures, for those that are not *pure* can be of very little use to the experimenter.

In closing, let me say that it has not been my intention to cast any reflections upon the very meritorious researches of Arning and others in this interesting work, but simply to present the bare facts in the case.

Respectfully,
HENRY WM. BLANC.

Malarial Fever.

To the Editor of the JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION:

Having been in St. Augustine, Fla., in April, when the cases of so-called typhoid fever to which you refer in THE JOURNAL of the 7th inst. were under treatment, I am able to say that your doubt whether they were cases of genuine typhoid is fully justified. I saw none of them personally, but from statements made to me by the local physicians it is plain that they were simply cases of the common malarial fever of the country, occurring in persons of feeble constitution, and presenting typhoid symptoms in their final stages.

It is stated that the number of persons traveling for health and pleasure in Florida during the past season has been greater than ever before, and it is not strange that in the hotels crowded by these visitors malarial fever of a severe type should have declared itself. But every one knows that the specific malaria in which that fever has its origin is quite different from the poison of typhoid, and there is no reason to suppose that these cases were due to defective sewerage. Moreover, I was for several days at the Hotel Cordova, and could discover nothing which would lead me to suspect the sewerage system of this and the other great Flagler hotels to be any less perfect than the plans of the architect promised.

The fact is, that a great part of Florida is still virtually a new country, and no unacclimated traveler can go everywhere, through its swamps and forests, without danger, especially if he is in feeble health. Its winter climate is much more equable than that of southern France and Italy, and its mild sea-breezes, both from the Ocean and the Gulf, are very different from the chilling mistral which so often prevails on the shores of the Mediterranean. Nor is it difficult

to find proper places for a winter residence in this nearly perfect climate, or to reach them without danger from malaria of any kind. Only let it be remembered that travel in Florida for its own sake should be strictly forbidden to invalids.

L. A. TOURTELLOT, M.D.

Utica, N. Y., May 14, 1892.

Widows and Orphans of Medical Men.

To the Editor of the JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION:

In the issue of the JOURNAL for April 16, is an interesting communication from Dr. F. Horner, of Marshall, Va., which, however, is somewhat in error in certain respects. I refer particularly to the statements concerning the New York Society for the relief of the Widows and Orphans of Medical Men. This society is entirely distinct from the Physicians Mutual Aid Association, having been founded May 14, 1842, and being patterned after a similar organization in London which is now nearly or quite a century old. The objects of the society are stated in its rather long name, and it has also upon certain occasions extended relief to its members. Its fiftieth year of existence will be completed this week. Its relief work has extended through forty years and during that period it has aided 27 widows and 23 orphans of members, and has disbursed among them $99370.31.

It has invested funds amounting to $178,150.28, and has never lost a dollar of the money which has been entrusted to its care. Its funds have been derived almost entirely from its members, and it now has upon its roll of annuitants 11 widows and 3 children.

Its annuitants have received relief for periods varying from 1 to 30 years. Five of those who are still receiving relief have been annuitants respectively 11, 13, 16, 20, and 30 years.

A widow who is without income receives an annuity of $400 per year, each orphan boy under 16, and each orphan girl under 18, receives $100 per year. Yours truly,

ANDREW F. CURRIER, M.D., Secretary.

New York, May 9, 1892.

NECROLOGY.

DR. CHARLES FREMONT CLARK, of Brooklyn, died April 21, in his thirty-sixth year. He was a promising young man, with a liberal training and an interne's experience, who was called upon to lay aside life's duties after about eight years of arduous participation therein. An anatomical abnormality accelerated the fatal issue of a chronic inflammation of the appendix vermiformis, which might have been in abeyance for some time to come, as it had already been for months, if not years. The malformation consisted in a deficient development of the mesocæcum; to that extent was it deficient that the caput coli was permitted to swing or float outwards to the left side. The appendix was the seat of a concretion and chronic inflammation, and this had been aggravated or converted into an acute appendicitis. This latter condition, it is thought, might have been delayed considerably, and possibly indefinitely postponed, save for the adverse influences superadded by the floating caput coli. The almost undescribed complications, which progressively endangered this young physician's life, were not suspected during his life. The strange facts were only made known by autopsy. For eight years past the patient had treated himself for malarial infection. During the last week of his life, only, did he seriously seek for medical counsel. In that week his bodily temperature, at times, rose to 106° and over, and the abdominal pains became so much more marked that the sick man felt that a typo-malarial fever had been grafted upon his long-standing paludal troubles. In this view, the consultants seemingly concurred. The pathologist who made the post-mortem is reported as saying that the result of the examination leads him to believe that there was no probable means of obviating the fatal issue. It cannot properly be said that there was an error in diagnosis on the part of the attendants, for they could not look into the recesses of their patient's body; and there is not basis of knowledge sufficient to build up a hypothesis of anomalous development in a person of the age of Dr. Clark. The loose caput coli is very rarely met with, and still more rarely has it been seen to suddenly precipitate so grave results, acting as the chief cause of trouble.

Dr. Clark was a native of Wheeling, West Virginia, having been born there in 1856. His literary education was obtained at the Washington and Jefferson College, graduating there when he was twenty-one years old. He graduated in medicine at the New York College of Physicians and Surgeons, in 1883. He served as house physician of the Brooklyn Hospital for a year after his graduation. He was unmarried.

MISCELLANY.

OFFICIAL LIST OF CHANGES in the Stations and Duties of Officers Serving in the Medical Department, U. S. Army, from May 7, 1892, to May 13, 1892.

Col. Joseph C. Baily, Surgeon U. S. A., is granted leave of absence for six months, on surgeon's certificate of disability, with permission to leave the Dept. of Texas.

First Lieut. William E. Purviance, Asst. Surgeon U. S. A., is relieved from duty at Ft. Riley, Kan., and will report in person to the commanding officer, Jefferson Bks., Mo., for duty at that post.

First Lieut. Francis A. Winter, Asst. Surgeon U. S. A., is relieved from duty at Jefferson Bks., Mo., and will report in person to the commanding officer, Ft. Riley, Kan., for duty at that post.

First Lieut. William F. Lippitt, Jr., Asst. Surgeon U. S. A., upon being relieved from duty at Ft. McPherson, Ga., will report in person to the commanding officer, Camp Eagle Pass, Tex., for duty at that post, relieving First Lieut. Ogden Rafferty, Asst. Surgeon U. S. A. First Lieut. Ogden Rafferty, on being relieved by First Lieut. Lippitt, will report in person to the commanding officer, Alcatraz Island, Cal., for duty at that post.

Major David L. Huntington, Surgeon U. S. A., is relieved from duty in New York City, to take effect on the final adjournment of the Army Medical Board, and will then proceed to Los Angeles, Cal., and report in person to the commanding General, Dept. of Arizona, for duty as Medical Director of that Dept., relieving Col. Joseph R. Smith, Surgeon. Col. Smith, on being relieved by Major Huntington, will proceed to San Francisco, Cal., and report in person to commanding General, Dept. of California, for duty as Medical Director of that Dept.

OFFICIAL LIST OF CHANGES in the Medical Corps of the U. S. Navy, for the Week Ending May 14, 1892.

Surgeons H. J. Babin and M. C. Drennan, ordered to Naval Academy, to examine the physical condition of candidates for admission to Naval Academy.

P. A. Surgeon Clement Biddle, ordered to Marine Rendezvous, Philadelphia, Pa.

Surgeon H. C. Eckstein, detached from Marine Rendezvous, Philadelphia, Pa., and wait orders.

Surgeon Howard Wells, ordered to the training ship "Portsmouth."

Asst. Surgeon James Stoughton, from the "Portsmouth," and to the "Constellation."

P. A. Surgeon E. H. Marsteller, from Naval Academy, and to the "Constellation."

Asst. Surgeon James G. Field, granted one year's sick leave.

OFFICIAL LIST OF CHANGES of Stations and Duties of Medical Officers of the U. S. Marine-Hospital Service, for the Three Weeks Ending May 7, 1892.

Surgeon P. H. Bailhache, detailed as chairman of Boards for physical examination of candidates for promotion and appointment, Revenue Marine Service. April 26 and May 3, 1892.

Surgeon F. W. Mead, detailed as chairman of Board for physical examination of candidates for appointment, Revenue Marine Service. May 5, 1892.

P. A. Surgeon P. C. Kalloch, to proceed to Providence, R. I., on special duty. April 29, 1892.

P. A. Surgeon J. J. Kinyoun, detailed as recorder of Board for physical examination of candidates for appointment, Revenue Marine Service. May 5, 1892.

Asst. Surgeon J. B. Stoner, ordered to examination for promotion. April 20, 1892.

Asst. Surgeon C. E. Decker, detailed as recorder of Boards for physical examination of candidates for promotion and appointment, Revenue Marine Service. April 26 and May 3, 1892.

Asst. Surgeon C. H. Gardner, to report to commanding officer, Revenue Steamer "Rush," for duty. April 18, 1892.

PROMOTION.

Surgeon W. A. Wheeler, commissioned as Surgeon by the President, April 20, 1892.